

ALMANAC

XIV

PLANETARY  
PHENOMENA OF  
URANUS IN CE

**The almanac XIV contains a list of planetary phenomena of Uranus from the 1st millennium CE to the 6th millennium CE, from the 1st century CE to the 51st century CE.**

# Planetary Phenomena of Uranus from -400 through 100 (UT), Astrodienst AG 7-Dez-2017 14:48, page 27

Attention, astronomical year style is used: The year -10 in astronomical counting style is the year 11 BCE in historical counting style.

max. Earth dist.	-10 Feb 07 j 17:06	15° <del>59</del> '54	21.05077 AU	max. Earth dist.	-2 Mar 11 j 13:01	17° <del>51</del> '50	20.99330 AU
retrograde	-10 May 27 j 21:55	19° <del>57</del> '32		retrograde	-2 Jun 29 j 20:26	21° <del>52</del> '19	
min. Earth dist.	-10 Aug 12 j 23:55	18° <del>00</del> '55	19.05735 AU	opposition	-2 Sep 15 j 10:05	19° <del>52</del> '27	0°-46'-56
opposition	-10 Aug 14 j 01:09	17° <del>58</del> '23	0°-46'-55	min. Earth dist.	-2 Sep 14 j 16:49	19° <del>54</del> '12	18.97942 AU
direct	-10 Oct 28 j 12:45	16° <del>02</del> '12		direct	-2 Nov 29 j 08:09	17° <del>55</del> '41	
conjunction	-9 Feb 10 j 19:12	19° <del>54</del> '28	0°-42'-52	conjunction	-1 Mar 15 j 01:08	21° <del>49</del> '28	0°-42'-1
minimum elong	-9 Feb 10 j 19:11	19° <del>54</del> '28	0°42'52	minimum elong	-1 Mar 15 j 01:09	21° <del>49</del> '28	0°42'02
max. Earth dist.	-9 Feb 11 j 20:58	19° <del>58</del> '09	21.06190 AU	max. Earth dist.	-1 Mar 15 j 18:43	21° <del>51</del> '59	20.96409 AU
retrograde	-9 Jun 01 j 07:02	23° <del>56</del> '06		retrograde	-1 Jul 04 j 04:09	25° <del>53</del> '11	
min. Earth dist.	-9 Aug 17 j 08:53	21° <del>59</del> '21	19.06626 AU	opposition	-1 Sep 19 j 16:52	23° <del>53</del> '09	0°-45'-52
opposition	-9 Aug 18 j 08:55	21° <del>56</del> '56	0°-47'-44	min. Earth dist.	-1 Sep 19 j 01:34	23° <del>54</del> '43	18.94850 AU
direct	-9 Nov 01 j 17:09	20° <del>00</del> '50		direct	-1 Dec 03 j 12:15	21° <del>56</del> '09	
conjunction	-8 Feb 15 j 00:47	23° <del>53</del> '01	0°-43'-30	conjunction	00 Mar 18 j 09:34	25° <del>50</del> '30	0°-40'-57
minimum elong	-8 Feb 15 j 00:47	23° <del>53</del> '01	0°43'31	minimum elong	00 Mar 18 j 09:34	25° <del>50</del> '30	0°40'58
max. Earth dist.	-8 Feb 16 j 03:07	23° <del>56</del> '47	21.06839 AU	max. Earth dist.	00 Mar 19 j 02:59	25° <del>52</del> '59	20.93155 AU
retrograde	-8 Jun 04 j 15:47	27° <del>54</del> '47		retrograde	00 Jul 07 j 14:16	29° <del>54</del> '41	
opposition	-8 Aug 21 j 16:23	25° <del>55</del> '37	0°-48'-20	opposition	00 Sep 22 j 23:32	27° <del>54</del> '30	0°-44'-35
min. Earth dist.	-8 Aug 20 j 16:22	25° <del>58</del> '02	19.07016 AU	min. Earth dist.	00 Sep 22 j 08:28	27° <del>56</del> '02	18.91429 AU
direct	-8 Nov 04 j 23:02	23° <del>59</del> '34		direct	00 Dec 06 j 19:15	25° <del>57</del> '17	
conjunction	-7 Feb 18 j 06:40	27° <del>51</del> '45	0°-43'-56	conjunction	01 Mar 22 j 18:35	29° <del>52</del> '18	0°-39'-41
minimum elong	-7 Feb 18 j 06:40	27° <del>51</del> '45	0°43'57	minimum elong	01 Mar 22 j 18:35	29° <del>52</del> '18	0°39'42
max. Earth dist.	-7 Feb 19 j 07:07	27° <del>55</del> '15	21.06966 AU	max. Earth dist.	01 Mar 23 j 09:40	29° <del>54</del> '27	20.89586 AU
retrograde	-7 Mar 29 j 16:08	0° <del>53</del> '42		retrograde	01 Mar 25 j 00:27	0° <del>56</del> '59	
opposition	-7 Jun 09 j 00:33	30° <del>54</del> '30	0°-48'-41	opposition	01 Jul 11 j 23:02	1° <del>56</del> '39	0°-43'-5
min. Earth dist.	-7 Aug 25 j 23:42	29° <del>56</del> '44	19.06872 AU	min. Earth dist.	01 Sep 27 j 06:23	1° <del>57</del> '59	18.87715 AU
direct	-7 Aug 25 j 01:27	29° <del>58</del> '26		direct	01 Sep 26 j 17:28	30° <del>59</del> '13	
	-7 Nov 09 j 03:42	0° <del>59</del> '13			01 Dec 05 j 12:32	0° <del>59</del> '13	
	-6 Jan 19 j 23:22	0° <del>59</del> '13			01 Dec 10 j 23:43	0° <del>59</del> '13	
		0° <del>59</del> '13			01 Dec 16 j 10:03	0° <del>59</del> '13	
conjunction	-6 Feb 22 j 13:05	1° <del>50</del> '43	0°-44'-9	conjunction	02 Mar 27 j 04:20	3° <del>54</del> '59	0°-38'-14
minimum elong	-6 Feb 22 j 13:05	1° <del>50</del> '43	0°44'10	minimum elong	02 Mar 27 j 04:20	3° <del>54</del> '59	0°38'15
max. Earth dist.	-6 Feb 23 j 13:30	1° <del>54</del> '12	21.06533 AU	max. Earth dist.	02 Mar 27 j 18:59	3° <del>57</del> '05	20.85735 AU
retrograde	-6 Jun 13 j 09:56	5° <del>52</del> '52		retrograde	02 Jul 16 j 10:00	8° <del>00</del> '14	
min. Earth dist.	-6 Aug 29 j 08:53	3° <del>55</del> '48	19.06139 AU	opposition	02 Oct 01 j 13:22	5° <del>59</del> '48	0°-41'-22
opposition	-6 Aug 30 j 06:49	3° <del>53</del> '35	0°-48'-49	min. Earth dist.	02 Oct 01 j 00:46	6° <del>01</del> '06	18.83714 AU
direct	-6 Nov 13 j 09:40	1° <del>57</del> '28		direct	02 Dec 15 j 06:46	4° <del>02</del> '10	
conjunction	-5 Feb 26 j 19:30	5° <del>49</del> '54	0°-44'-10	conjunction	03 Mar 31 j 14:25	7° <del>58</del> '45	0°-36'-34
minimum elong	-5 Feb 26 j 19:30	5° <del>49</del> '54	0°44'11	minimum elong	03 Mar 31 j 14:25	7° <del>58</del> '45	0°36'35
max. Earth dist.	-5 Feb 27 j 17:43	5° <del>53</del> '04	21.05512 AU	max. Earth dist.	03 Apr 01 j 02:43	8° <del>00</del> '31	20.81599 AU
retrograde	-5 Jun 17 j 17:40	9° <del>52</del> '18		retrograde	03 Jul 20 j 19:59	12° <del>04</del> '38	
opposition	-5 Sep 03 j 13:57	7° <del>52</del> '54	0°-48'-42	opposition	03 Oct 05 j 20:49	10° <del>04</del> '06	0°-39'-26
min. Earth dist.	-5 Sep 02 j 17:59	7° <del>54</del> '55	19.04834 AU	min. Earth dist.	03 Oct 05 j 10:31	10° <del>05</del> '09	18.79438 AU
direct	-5 Nov 17 j 14:31	5° <del>56</del> '41		direct	03 Dec 19 j 11:58	8° <del>06</del> '15	
conjunction	-4 Mar 02 j 02:28	9° <del>49</del> '19	0°-43'-57	conjunction	04 Apr 04 j 01:34	12° <del>03</del> '47	0°-34'-43
minimum elong	-4 Mar 02 j 02:28	9° <del>49</del> '19	0°43'57	minimum elong	04 Apr 04 j 01:34	12° <del>03</del> '47	0°34'45
max. Earth dist.	-4 Mar 03 j 00:35	9° <del>52</del> '29	21.03940 AU	max. Earth dist.	04 Apr 04 j 13:11	12° <del>05</del> '27	20.77191 AU
retrograde	-4 Jun 21 j 03:28	13° <del>51</del> '59		retrograde	04 Jul 24 j 08:09	16° <del>10</del> '18	
opposition	-4 Sep 06 j 20:46	11° <del>52</del> '26	0°-48'-20	opposition	04 Oct 09 j 04:17	14° <del>09</del> '42	0°-37'-17
min. Earth dist.	-4 Sep 06 j 01:09	11° <del>54</del> '26	19.02992 AU	min. Earth dist.	04 Oct 08 j 18:37	14° <del>10</del> '42	18.74873 AU
direct	-4 Nov 20 j 20:54	9° <del>56</del> '04		direct	04 Dec 22 j 19:40	12° <del>11</del> '37	
conjunction	-3 Mar 06 j 09:34	13° <del>49</del> '00	0°-43'-31	conjunction	05 Apr 08 j 13:25	16° <del>10</del> '11	0°-32'-40
minimum elong	-3 Mar 06 j 09:34	13° <del>49</del> '00	0°43'33	minimum elong	05 Apr 08 j 13:25	16° <del>10</del> '11	0°32'41
max. Earth dist.	-3 Mar 07 j 05:29	13° <del>51</del> '50	21.01858 AU	max. Earth dist.	05 Apr 08 j 22:20	16° <del>11</del> '28	20.72472 AU
retrograde	-3 Jun 25 j 10:45	17° <del>51</del> '58		retrograde	05 Jul 28 j 19:13	20° <del>17</del> '25	
min. Earth dist.	-3 Sep 10 j 10:02	15° <del>54</del> '03	19.00679 AU	opposition	05 Oct 13 j 12:21	18° <del>16</del> '44	0°-34'-56
opposition	-3 Sep 11 j 03:36	15° <del>52</del> '16	0°-47'-45	min. Earth dist.	05 Oct 13 j 05:25	18° <del>17</del> '27	18.69990 AU
direct	-3 Nov 25 j 01:17	13° <del>55</del> '42		direct	05 Dec 27 j 01:50	16° <del>18</del> '25	
conjunction	-2 Mar 10 j 17:15	17° <del>49</del> '00	0°-42'-52	conjunction	06 Apr 13 j 02:12	20° <del>18</del> '04	0°-30'-27
minimum elong	-2 Mar 10 j 17:15	17° <del>49</del> '00	0°42'53	minimum elong	06 Apr 13 j 02:12	20° <del>18</del> '04	0°30'28

max. Earth dist.	06 Apr 13 j 09:53	20° $\Upsilon$ 19'11	20.67420 AU	retrograde	13 Sep 01 j 12:23	24° $\text{8}$ 09'16	
retrograde	06 Aug 02 j 08:35	24° $\Upsilon$ 26'02		opposition	13 Nov 15 j 19:34	22° $\text{8}$ 07'25	0°-10'-2
opposition	06 Oct 17 j 20:35	22° $\Upsilon$ 25'15	0°-32'-23	min. Earth dist.	13 Nov 16 j 02:56	22° $\text{8}$ 06'37	18.20610 AU
min. Earth dist.	06 Oct 17 j 14:33	22° $\Upsilon$ 25'53	18.64753 AU	direct	14 Jan 29 j 10:44	20° $\text{8}$ 06'04	
direct	06 Dec 31 j 10:51	20° $\Upsilon$ 26'40					
				conjunction	14 May 18 j 12:11	24° $\text{8}$ 16'18	0°-7'-28
conjunction	07 Apr 17 j 15:40	24° $\Upsilon$ 27'29	0°-28'-3	minimum elong	14 May 18 j 12:11	24° $\text{8}$ 16'18	0°07'29
minimum elong	07 Apr 17 j 15:40	24° $\Upsilon$ 27'29	0°28'04	behind sun begin	14 May 18 j 06:02	24° $\text{8}$ 15'25	
max. Earth dist.	07 Apr 17 j 20:25	24° $\Upsilon$ 28'10	20.62004 AU	behind sun end	14 May 18 j 18:20	24° $\text{8}$ 17'12	
retrograde	07 Aug 06 j 20:23	28° $\Upsilon$ 36'11		max. Earth dist.	14 May 18 j 02:48	24° $\text{8}$ 14'56	20.17310 AU
opposition	07 Oct 22 j 05:29	26° $\Upsilon$ 35'18	0°-29'-38	retrograde	14 Sep 06 j 05:37	28° $\text{8}$ 30'27	
min. Earth dist.	07 Oct 22 j 02:20	26° $\Upsilon$ 35'37	18.59160 AU	opposition	14 Nov 20 j 07:42	26° $\text{8}$ 28'27	0°-6'-23
direct	08 Jan 04 j 18:16	24° $\Upsilon$ 36'23		min. Earth dist.	14 Nov 20 j 15:36	26° $\text{8}$ 27'37	18.13996 AU
				direct	15 Feb 03 j 00:45	24° $\text{8}$ 26'43	
conjunction	08 Apr 21 j 06:01	28° $\Upsilon$ 38'24	0°-25'-30				
minimum elong	08 Apr 21 j 06:01	28° $\Upsilon$ 38'24	0°25'30	conjunction	15 May 23 j 08:00	28° $\text{8}$ 38'28	0°-4'-10
max. Earth dist.	08 Apr 21 j 09:11	28° $\Upsilon$ 38'52	20.56244 AU	minimum elong	15 May 23 j 07:59	28° $\text{8}$ 38'28	0°04'11
	08 May 15 j 02:01	0° $\text{8}$		behind sun begin	15 May 23 j 01:18	28° $\text{8}$ 37'30	
retrograde	08 Aug 10 j 10:50	2° $\text{8}$ 47'52		behind sun end	15 May 23 j 14:40	28° $\text{8}$ 39'26	
opposition	08 Oct 25 j 14:39	0° $\text{8}$ 46'49	0°-26'-44	max. Earth dist.	15 May 22 j 20:59	28° $\text{8}$ 36'51	20.10736 AU
min. Earth dist.	08 Oct 25 j 12:28	0° $\text{8}$ 47'03	18.53222 AU		15 Jun 15 j 13:43	0° $\text{II}$	
	08 Nov 13 j 17:33	30° $\text{R}$ $\Upsilon$		retrograde	15 Sep 10 j 21:52	2° $\text{II}$ 53'24	
direct	09 Jan 08 j 04:35	28° $\Upsilon$ 47'33		opposition	15 Nov 24 j 20:38	0° $\text{II}$ 51'20	0°-2'-41
	09 Mar 02 j 23:24	0° $\text{8}$		min. Earth dist.	15 Nov 25 j 06:45	0° $\text{II}$ 50'14	18.07487 AU
					15 Dec 15 j 10:15	30° $\text{R}$ $\text{8}$	
conjunction	09 Apr 25 j 21:10	2° $\text{8}$ 50'50	0°-22'-47	direct	16 Feb 07 j 13:33	28° $\text{8}$ 49'13	
minimum elong	09 Apr 25 j 21:10	2° $\text{8}$ 50'50	0°22'48		16 Mar 31 j 13:03	0° $\text{II}$	
max. Earth dist.	09 Apr 25 j 21:25	2° $\text{8}$ 50'52	20.50150 AU				
retrograde	09 Aug 14 j 23:34	7° $\text{8}$ 01'03		conjunction	16 May 27 j 04:39	3° $\text{II}$ 02'30	0°00'-46
opposition	09 Oct 30 j 00:16	4° $\text{8}$ 59'51	0°-23'-39	minimum elong	16 May 27 j 04:38	3° $\text{II}$ 02'30	0°00'47
min. Earth dist.	09 Oct 30 j 01:01	4° $\text{8}$ 59'46	18.46990 AU	behind sun begin	16 May 26 j 21:52	3° $\text{II}$ 01'31	
direct	10 Jan 12 j 13:30	3° $\text{8}$ 00'11		behind sun end	16 May 27 j 11:24	3° $\text{II}$ 03'29	
				max. Earth dist.	16 May 26 j 15:37	3° $\text{II}$ 00'34	20.04302 AU
conjunction	10 Apr 30 j 13:07	7° $\text{8}$ 04'46	0°-19'-56	asc. node	16 Aug 16 j 21:44	6° $\text{II}$ 56'35	
minimum elong	10 Apr 30 j 13:07	7° $\text{8}$ 04'46	0°19'56	retrograde	16 Sep 14 j 16:15	7° $\text{II}$ 18'15	
max. Earth dist.	10 Apr 30 j 11:42	7° $\text{8}$ 04'34	20.43809 AU	opposition	16 Nov 28 j 10:10	5° $\text{II}$ 16'06	0°01'03
retrograde	10 Aug 19 j 14:46	11° $\text{8}$ 15'44		min. Earth dist.	16 Nov 28 j 20:54	5° $\text{II}$ 14'57	18.01121 AU
opposition	10 Nov 03 j 10:17	9° $\text{8}$ 14'23	0°-20'-25	direct	17 Feb 11 j 05:29	3° $\text{II}$ 13'39	
min. Earth dist.	10 Nov 03 j 11:50	9° $\text{8}$ 14'13	18.40540 AU	max. Earth dist.	17 May 31 j 11:57	7° $\text{II}$ 26'22	19.97998 AU
direct	11 Jan 17 j 00:40	7° $\text{8}$ 14'18					
				conjunction	17 Jun 01 j 02:16	7° $\text{II}$ 28'30	0°02'43
conjunction	11 May 05 j 05:34	11° $\text{8}$ 20'14	0°-16'-58	minimum elong	17 Jun 01 j 02:15	7° $\text{II}$ 28'30	0°02'43
minimum elong	11 May 05 j 05:34	11° $\text{8}$ 20'14	0°16'59	behind sun begin	17 May 31 j 19:28	7° $\text{II}$ 27'31	
max. Earth dist.	11 May 05 j 01:44	11° $\text{8}$ 19'41	20.37274 AU	behind sun end	17 Jun 01 j 09:01	7° $\text{II}$ 29'29	
	11 Jul 19 j 14:56	15° $\text{8}$		retrograde	17 Sep 19 j 09:43	11° $\text{II}$ 45'02	
retrograde	11 Aug 24 j 04:57	15° $\text{8}$ 31'59		opposition	17 Dec 03 j 00:31	9° $\text{II}$ 42'52	0°04'50
	11 Sep 29 j 03:37	15° $\text{R}$ $\text{8}$		min. Earth dist.	17 Dec 03 j 13:27	9° $\text{II}$ 41'29	17.94894 AU
opposition	11 Nov 07 j 20:57	13° $\text{8}$ 30'27	0°-17'-4	direct	18 Feb 15 j 20:00	7° $\text{II}$ 40'05	
min. Earth dist.	11 Nov 08 j 01:10	13° $\text{8}$ 30'00	18.33946 AU	max. Earth dist.	18 Jun 05 j 07:58	11° $\text{II}$ 54'01	19.91852 AU
direct	12 Jan 21 j 10:56	11° $\text{8}$ 29'56					
	12 Apr 28 j 08:35	15° $\text{8}$		conjunction	18 Jun 06 j 00:37	11° $\text{II}$ 56'30	0°06'06
				minimum elong	18 Jun 06 j 00:36	11° $\text{II}$ 56'30	0°06'07
conjunction	12 May 08 j 23:01	15° $\text{8}$ 37'16	0°-13'-53	behind sun begin	18 Jun 05 j 18:11	11° $\text{II}$ 55'34	
minimum elong	12 May 08 j 23:02	15° $\text{8}$ 37'16	0°13'54	behind sun end	18 Jun 06 j 07:02	11° $\text{II}$ 57'27	
behind sun begin	12 May 08 j 19:44	15° $\text{8}$ 36'48		retrograde	18 Sep 24 j 05:24	16° $\text{II}$ 13'51	
behind sun end	12 May 09 j 02:20	15° $\text{8}$ 37'44		opposition	18 Dec 07 j 15:36	14° $\text{II}$ 11'39	0°08'36
max. Earth dist.	12 May 08 j 17:30	15° $\text{8}$ 36'28	20.30643 AU	min. Earth dist.	18 Dec 08 j 05:22	14° $\text{II}$ 10'10	17.88820 AU
retrograde	12 Aug 27 j 21:05	19° $\text{8}$ 49'48		direct	19 Feb 20 j 14:11	12° $\text{II}$ 08'32	
opposition	12 Nov 11 j 07:49	17° $\text{8}$ 48'06	0°-13'-36				
min. Earth dist.	12 Nov 11 j 12:45	17° $\text{8}$ 47'34	18.27284 AU	conjunction	19 Jun 10 j 23:49	16° $\text{II}$ 26'31	0°09'29
direct	13 Jan 24 j 23:18	15° $\text{8}$ 47'10		minimum elong	19 Jun 10 j 23:49	16° $\text{II}$ 26'31	0°09'29
				behind sun begin	19 Jun 10 j 18:13	16° $\text{II}$ 25'41	
conjunction	13 May 13 j 17:17	19° $\text{8}$ 55'56	0°-10'-42	behind sun end	19 Jun 11 j 05:25	16° $\text{II}$ 27'20	
minimum elong	13 May 13 j 17:17	19° $\text{8}$ 55'56	0°10'43	max. Earth dist.	19 Jun 10 j 06:13	16° $\text{II}$ 23'52	19.85828 AU
behind sun begin	13 May 13 j 12:09	19° $\text{8}$ 55'12		retrograde	19 Sep 29 j 00:05	20° $\text{II}$ 44'36	
behind sun end	13 May 13 j 22:25	19° $\text{8}$ 56'40		opposition	19 Dec 12 j 07:37	18° $\text{II}$ 42'24	0°12'22
max. Earth dist.	13 May 13 j 09:40	19° $\text{8}$ 54'50	20.23960 AU	min. Earth dist.	19 Dec 12 j 23:29	18° $\text{II}$ 40'41	17.82859 AU

direct	20 Feb 25 j 06:51	16°II38'58		direct	28 Apr 02 j 12:45	23°☾38'49	
conjunction	20 Jun 14 j 23:52	20°II58'26	0°12'50	conjunction	28 Jul 23 j 18:26	28°☾08'01	0°35'35
minimum elong	20 Jun 14 j 23:52	20°II58'26	0°12'51	minimum elong	28 Jul 23 j 18:26	28°☾08'01	0°35'35
behind sun begin	20 Jun 14 j 19:48	20°II57'51		max. Earth dist.	28 Jul 22 j 14:32	28°☾03'41	19.41527 AU
behind sun end	20 Jun 15 j 03:55	20°II59'02			28 Aug 23 j 15:14	0°♈	
max. Earth dist.	20 Jun 14 j 03:30	20°II55'22	19.79927 AU	retrograde	28 Nov 09 j 05:48	2°♊30'32	
retrograde	20 Oct 02 j 20:52	25°II17'14		opposition	29 Jan 21 j 15:18	0°♊28'01	0°40'47
opposition	20 Dec 16 j 00:14	23°II15'00	0°16'05	min. Earth dist.	29 Jan 22 j 15:04	0°♊25'25	17.40110 AU
min. Earth dist.	20 Dec 16 j 17:14	23°II13'10	17.77025 AU		29 Feb 01 j 09:31	30°♈☾	
direct	21 Mar 01 j 02:59	21°II11'13		direct	29 Apr 07 j 12:37	28°☾21'49	
max. Earth dist.	21 Jun 19 j 03:41	25°II28'59	19.74142 AU		29 Jun 09 j 06:22	0°♊	
conjunction	21 Jun 20 j 00:46	25°II32'11	0°16'08	conjunction	29 Jul 28 j 21:59	2°♊51'51	0°37'35
minimum elong	21 Jun 20 j 00:46	25°II32'11	0°16'07	minimum elong	29 Jul 28 j 21:59	2°♊51'51	0°37'35
retrograde	21 Oct 07 j 17:06	29°II51'37		max. Earth dist.	29 Jul 27 j 18:46	2°♊47'36	19.38754 AU
opposition	21 Dec 20 j 17:50	27°II49'21	0°19'43	retrograde	29 Nov 14 j 06:27	7°♊14'35	
min. Earth dist.	21 Dec 21 j 12:31	27°II47'19	17.71315 AU	opposition	30 Jan 26 j 14:04	5°♊12'09	0°42'54
direct	22 Mar 05 j 22:07	25°II45'13		min. Earth dist.	30 Jan 27 j 12:51	5°♊09'39	17.37631 AU
	22 Jun 23 j 00:19	0°☾		direct	30 Apr 12 j 14:12	3°♊05'52	
max. Earth dist.	22 Jun 24 j 02:11	0°☾03'57	19.68519 AU	max. Earth dist.	30 Aug 01 j 22:13	7°♊32'19	19.36571 AU
conjunction	22 Jun 25 j 01:55	0°☾07'34	0°19'21	conjunction	30 Aug 03 j 01:25	7°♊36'34	0°39'20
minimum elong	22 Jun 25 j 01:55	0°☾07'34	0°19'21	minimum elong	30 Aug 03 j 01:25	7°♊36'34	0°39'21
retrograde	22 Oct 12 j 14:27	4°☾27'38		retrograde	30 Nov 19 j 05:00	11°♊59'29	
opposition	22 Dec 25 j 12:03	2°☾25'18	0°23'15	opposition	31 Jan 31 j 13:30	9°♊57'09	0°44'43
min. Earth dist.	22 Dec 26 j 07:49	2°☾23'09	17.65799 AU	min. Earth dist.	31 Feb 01 j 13:00	9°♊54'34	17.35752 AU
direct	23 Mar 10 j 19:21	0°☾20'47		direct	31 Apr 17 j 15:09	7°♊50'49	
max. Earth dist.	23 Jun 29 j 03:57	4°☾40'50	19.63107 AU	max. Earth dist.	31 Aug 07 j 02:15	12°♊17'54	19.34982 AU
conjunction	23 Jun 30 j 03:54	4°☾44'30	0°22'27	conjunction	31 Aug 08 j 05:01	12°♊22'06	0°40'50
minimum elong	23 Jun 30 j 03:54	4°☾44'30	0°22'27	minimum elong	31 Aug 08 j 05:01	12°♊22'06	0°40'49
retrograde	23 Oct 17 j 12:13	9°☾05'05			31 Sep 21 j 23:17	15°♊	
opposition	23 Dec 30 j 06:53	7°☾02'43	0°26'39	retrograde	31 Nov 24 j 05:54	16°♊45'07	
min. Earth dist.	23 Dec 31 j 03:49	7°☾00'26	17.60516 AU		32 Jan 30 j 00:00	15°♈♊	
direct	24 Mar 14 j 16:31	4°☾57'52		opposition	32 Feb 05 j 13:11	14°♊42'54	0°46'14
max. Earth dist.	24 Jul 03 j 03:54	9°☾18'48	19.57971 AU	min. Earth dist.	32 Feb 06 j 11:34	14°♊40'28	17.34432 AU
conjunction	24 Jul 04 j 06:12	9°☾22'50	0°25'26	direct	32 Apr 21 j 18:36	12°♊36'35	
minimum elong	24 Jul 04 j 06:12	9°☾22'50	0°25'26		32 Jul 07 j 22:23	15°♊	
retrograde	24 Oct 21 j 09:59	13°☾43'56		max. Earth dist.	32 Aug 11 j 06:31	17°♊04'13	19.33923 AU
opposition	25 Jan 03 j 02:29	11°☾41'29	0°29'53	conjunction	32 Aug 12 j 08:41	17°♊08'19	0°42'03
min. Earth dist.	25 Jan 04 j 00:29	11°☾39'05	17.55552 AU	minimum elong	32 Aug 12 j 08:41	17°♊08'19	0°42'03
direct	25 Mar 19 j 14:40	9°☾36'17		retrograde	32 Nov 28 j 04:38	21°♊31'21	
max. Earth dist.	25 Jul 08 j 06:57	13°☾58'27	19.53175 AU	opposition	33 Feb 09 j 13:44	19°♊29'16	0°47'26
conjunction	25 Jul 09 j 08:57	14°☾02'28	0°28'15	min. Earth dist.	33 Feb 10 j 12:52	19°♊26'45	17.33636 AU
minimum elong	25 Jul 09 j 08:57	14°☾02'27	0°28'16	direct	33 Apr 26 j 20:59	17°♊22'58	
retrograde	25 Oct 26 j 09:09	18°☾23'59		max. Earth dist.	33 Aug 16 j 09:56	21°♊50'53	19.33377 AU
opposition	26 Jan 07 j 22:43	16°☾21'30	0°32'57	conjunction	33 Aug 17 j 12:00	21°♊54'59	0°42'59
min. Earth dist.	26 Jan 08 j 21:09	16°☾19'03	17.50952 AU	minimum elong	33 Aug 17 j 12:00	21°♊54'59	0°42'59
direct	26 Mar 24 j 13:41	14°☾15'59		retrograde	33 Dec 03 j 05:39	26°♊17'59	
max. Earth dist.	26 Jul 13 j 08:13	18°☾38'59	19.48790 AU	opposition	34 Feb 14 j 14:35	24°♊16'00	0°48'19
conjunction	26 Jul 14 j 11:51	18°☾43'15	0°30'54	min. Earth dist.	34 Feb 15 j 12:19	24°♊13'39	17.33326 AU
minimum elong	26 Jul 14 j 11:51	18°☾43'15	0°30'54	direct	34 May 02 j 01:39	22°♊09'45	
retrograde	26 Oct 31 j 07:10	23°☾05'10		conjunction	34 Aug 22 j 15:18	26°♊41'53	0°43'37
opposition	27 Jan 12 j 19:37	21°☾02'39	0°35'48	minimum elong	34 Aug 22 j 15:18	26°♊41'53	0°43'37
min. Earth dist.	27 Jan 13 j 18:57	21°☾00'06	17.46816 AU	max. Earth dist.	34 Aug 21 j 14:30	26°♊37'59	19.33293 AU
direct	27 Mar 29 j 12:29	18°☾56'50			34 Oct 20 j 12:42	0°♐	
conjunction	27 Jul 19 j 15:02	23°☾25'08	0°33'21	retrograde	34 Dec 08 j 04:41	1°♐04'44	
minimum elong	27 Jul 19 j 15:02	23°☾25'08	0°33'22		35 Jan 27 j 19:38	30°♈♊	
max. Earth dist.	27 Jul 18 j 12:03	23°☾20'57	19.44895 AU	opposition	35 Feb 19 j 15:50	29°♊02'52	0°48'52
retrograde	27 Nov 05 j 07:25	27°☾47'22		min. Earth dist.	35 Feb 20 j 14:06	29°♊00'27	17.33474 AU
opposition	28 Jan 17 j 17:08	25°☾44'50	0°38'25	direct	35 May 07 j 04:25	26°♊56'39	
min. Earth dist.	28 Jan 18 j 16:08	25°☾42'19	17.43178 AU		35 Aug 03 j 20:46	0°♐	

conjunction	35 Aug 27 j 18:09	1° $\mathring{M}$ 28'46	0°43'57	max. Earth dist.	43 Oct 04 j 07:07	9° $\mathring{A}$ 15'16	19.53524 AU
minimum elong	35 Aug 27 j 18:09	1° $\mathring{M}$ 28'46	0°43'58	retrograde	44 Jan 19 j 17:50	13° $\mathring{A}$ 35'41	
max. Earth dist.	35 Aug 26 j 17:09	1° $\mathring{M}$ 24'49	19.33668 AU	opposition	44 Apr 03 j 06:08	11° $\mathring{A}$ 34'30	0°38'59
retrograde	35 Dec 13 j 05:58	5° $\mathring{M}$ 51'23		min. Earth dist.	44 Apr 03 j 15:57	11° $\mathring{A}$ 33'28	17.55864 AU
opposition	36 Feb 24 j 17:19	3° $\mathring{M}$ 49'37	0°49'04	direct	44 Jun 19 j 10:50	9° $\mathring{A}$ 29'45	
min. Earth dist.	36 Feb 25 j 14:04	3° $\mathring{M}$ 47'22	17.34061 AU				
direct	36 May 11 j 09:19	1° $\mathring{M}$ 43'26		conjunction	44 Oct 08 j 15:48	13° $\mathring{A}$ 55'27	0°33'53
				minimum elong	44 Oct 08 j 15:48	13° $\mathring{A}$ 55'27	0°33'53
conjunction	36 Aug 31 j 20:44	6° $\mathring{M}$ 15'22	0°43'59	max. Earth dist.	44 Oct 08 j 06:32	13° $\mathring{A}$ 54'00	19.58299 AU
minimum elong	36 Aug 31 j 20:44	6° $\mathring{M}$ 15'22	0°43'58	retrograde	45 Jan 23 j 14:54	18° $\mathring{A}$ 13'18	
max. Earth dist.	36 Aug 30 j 21:35	6° $\mathring{M}$ 11'43	19.34467 AU	opposition	45 Apr 08 j 06:57	16° $\mathring{A}$ 12'18	0°36'27
retrograde	36 Dec 17 j 04:57	10° $\mathring{M}$ 37'41		min. Earth dist.	45 Apr 08 j 14:13	16° $\mathring{A}$ 11'32	17.60836 AU
opposition	37 Feb 28 j 19:08	8° $\mathring{M}$ 36'00	0°48'55	direct	45 Jun 24 j 13:21	14° $\mathring{A}$ 07'57	
min. Earth dist.	37 Mar 01 j 15:55	8° $\mathring{M}$ 33'45	17.35075 AU				
direct	37 May 16 j 11:54	6° $\mathring{M}$ 29'54		conjunction	45 Oct 13 j 11:41	18° $\mathring{A}$ 32'27	0°31'31
				minimum elong	45 Oct 13 j 11:41	18° $\mathring{A}$ 32'27	0°31'32
conjunction	37 Sep 05 j 22:36	11° $\mathring{M}$ 01'29	0°43'42	max. Earth dist.	45 Oct 13 j 04:13	18° $\mathring{A}$ 31'17	19.63476 AU
minimum elong	37 Sep 05 j 22:37	11° $\mathring{M}$ 01'29	0°43'42	retrograde	46 Jan 28 j 10:27	22° $\mathring{A}$ 49'37	
max. Earth dist.	37 Sep 04 j 23:27	10° $\mathring{M}$ 57'50	19.35713 AU	opposition	46 Apr 13 j 07:27	20° $\mathring{A}$ 48'47	0°33'42
retrograde	37 Dec 22 j 05:54	15° $\mathring{M}$ 23'25		min. Earth dist.	46 Apr 13 j 13:32	20° $\mathring{A}$ 48'09	17.66200 AU
opposition	38 Mar 05 j 20:56	13° $\mathring{M}$ 21'46	0°48'26	direct	46 Jun 29 j 13:16	18° $\mathring{A}$ 44'50	
min. Earth dist.	38 Mar 06 j 16:03	13° $\mathring{M}$ 19'42	17.36546 AU				
direct	38 May 21 j 16:26	11° $\mathring{M}$ 15'45		conjunction	46 Oct 18 j 06:44	23° $\mathring{A}$ 08'03	0°28'58
				minimum elong	46 Oct 18 j 06:44	23° $\mathring{A}$ 08'03	0°28'57
conjunction	38 Sep 10 j 23:55	15° $\mathring{M}$ 46'51	0°43'07	max. Earth dist.	46 Oct 18 j 01:30	23° $\mathring{A}$ 07'14	19.69002 AU
minimum elong	38 Sep 10 j 23:55	15° $\mathring{M}$ 46'51	0°43'07	retrograde	47 Feb 02 j 06:59	27° $\mathring{A}$ 24'29	
max. Earth dist.	38 Sep 10 j 03:14	15° $\mathring{M}$ 43'35	19.37413 AU	opposition	47 Apr 18 j 07:28	25° $\mathring{A}$ 23'51	0°30'45
retrograde	38 Dec 27 j 04:25	20° $\mathring{M}$ 08'20		min. Earth dist.	47 Apr 18 j 10:53	25° $\mathring{A}$ 23'29	17.71849 AU
opposition	39 Mar 10 j 22:49	18° $\mathring{M}$ 06'44	0°47'37	direct	47 Jul 04 j 14:44	23° $\mathring{A}$ 20'18	
min. Earth dist.	39 Mar 11 j 17:20	18° $\mathring{M}$ 04'44	17.38469 AU				
direct	39 May 26 j 19:12	16° $\mathring{M}$ 00'49		conjunction	47 Oct 23 j 01:00	27° $\mathring{A}$ 42'11	0°26'14
max. Earth dist.	39 Sep 15 j 04:09	20° $\mathring{M}$ 28'05	19.39586 AU	minimum elong	47 Oct 23 j 01:01	27° $\mathring{A}$ 42'11	0°26'14
				max. Earth dist.	47 Oct 22 j 21:43	27° $\mathring{A}$ 41'40	19.74771 AU
conjunction	39 Sep 16 j 00:28	20° $\mathring{M}$ 31'17	0°42'14		47 Nov 30 j 22:07	0° $\mathring{M}$	
minimum elong	39 Sep 16 j 00:28	20° $\mathring{M}$ 31'17	0°42'14	retrograde	48 Feb 07 j 01:15	1° $\mathring{M}$ 57'52	
retrograde	40 Jan 01 j 03:57	24° $\mathring{M}$ 52'15			48 Apr 21 j 06:13	30° $\mathring{R}$ $\mathring{A}$	
opposition	40 Mar 15 j 00:29	22° $\mathring{M}$ 50'41	0°46'29	opposition	48 Apr 22 j 07:13	29° $\mathring{A}$ 57'24	0°27'37
min. Earth dist.	40 Mar 15 j 17:19	22° $\mathring{M}$ 48'53	17.40890 AU	min. Earth dist.	48 Apr 22 j 09:45	29° $\mathring{A}$ 57'08	17.77728 AU
direct	40 May 30 j 23:33	20° $\mathring{M}$ 44'53		direct	48 Jul 08 j 13:07	27° $\mathring{A}$ 54'15	
max. Earth dist.	40 Sep 19 j 06:59	25° $\mathring{M}$ 11'52	19.42265 AU		48 Sep 18 j 17:41	0° $\mathring{M}$	
conjunction	40 Sep 20 j 00:25	25° $\mathring{M}$ 14'36	0°41'05	conjunction	48 Oct 26 j 18:29	2° $\mathring{M}$ 14'43	0°23'22
minimum elong	40 Sep 20 j 00:25	25° $\mathring{M}$ 14'36	0°41'05	minimum elong	48 Oct 26 j 18:29	2° $\mathring{M}$ 14'43	0°23'21
retrograde	41 Jan 05 j 01:38	29° $\mathring{M}$ 35'00		max. Earth dist.	48 Oct 26 j 16:58	2° $\mathring{M}$ 14'29	19.80745 AU
opposition	41 Mar 20 j 02:17	27° $\mathring{M}$ 33'30	0°45'02	retrograde	49 Feb 10 j 21:08	6° $\mathring{M}$ 29'37	
min. Earth dist.	41 Mar 20 j 17:37	27° $\mathring{M}$ 31'51	17.43822 AU	opposition	49 Apr 27 j 06:25	4° $\mathring{M}$ 29'18	0°24'19
direct	41 Jun 05 j 02:50	25° $\mathring{M}$ 27'54		min. Earth dist.	49 Apr 27 j 06:06	4° $\mathring{M}$ 29'20	17.83766 AU
				direct	49 Jul 13 j 12:54	2° $\mathring{M}$ 26'33	
conjunction	41 Sep 24 j 23:17	29° $\mathring{M}$ 56'43	0°39'39				
minimum elong	41 Sep 24 j 23:17	29° $\mathring{M}$ 56'43	0°39'38	conjunction	49 Oct 31 j 11:03	6° $\mathring{M}$ 45'34	0°20'21
max. Earth dist.	41 Sep 24 j 06:53	29° $\mathring{M}$ 54'08	19.45473 AU	minimum elong	49 Oct 31 j 11:03	6° $\mathring{M}$ 45'34	0°20'21
	41 Sep 25 j 20:13	0° $\mathring{A}$		max. Earth dist.	49 Oct 31 j 11:43	6° $\mathring{M}$ 45'40	19.86838 AU
retrograde	42 Jan 09 j 23:47	4° $\mathring{A}$ 16'32		retrograde	50 Feb 15 j 14:38	10° $\mathring{M}$ 59'40	
opposition	42 Mar 25 j 03:51	2° $\mathring{A}$ 15'05	0°43'17	opposition	50 May 02 j 05:10	8° $\mathring{M}$ 59'29	0°20'54
min. Earth dist.	42 Mar 25 j 17:20	2° $\mathring{A}$ 13'38	17.47310 AU	min. Earth dist.	50 May 02 j 04:09	8° $\mathring{M}$ 59'35	17.89909 AU
direct	42 Jun 10 j 06:06	0° $\mathring{A}$ 09'42		direct	50 Jul 18 j 10:03	6° $\mathring{M}$ 57'06	
conjunction	42 Sep 29 j 21:38	4° $\mathring{A}$ 37'34	0°37'58	conjunction	50 Nov 05 j 02:50	11° $\mathring{M}$ 14'37	0°17'14
minimum elong	42 Sep 29 j 21:38	4° $\mathring{A}$ 37'34	0°37'58	minimum elong	50 Nov 05 j 02:49	11° $\mathring{M}$ 14'37	0°17'14
max. Earth dist.	42 Sep 29 j 08:13	4° $\mathring{A}$ 35'27	19.49238 AU	max. Earth dist.	50 Nov 05 j 04:48	11° $\mathring{M}$ 14'55	19.93020 AU
retrograde	43 Jan 14 j 21:01	8° $\mathring{A}$ 56'44			51 Jan 18 j 22:36	15° $\mathring{M}$	
opposition	43 Mar 30 j 05:01	6° $\mathring{A}$ 55'25	0°41'16	retrograde	51 Feb 20 j 09:02	15° $\mathring{M}$ 27'53	
min. Earth dist.	43 Mar 30 j 16:24	6° $\mathring{A}$ 54'12	17.51328 AU		51 Mar 25 j 17:55	15° $\mathring{R}$ $\mathring{M}$	
direct	43 Jun 15 j 09:07	4° $\mathring{A}$ 50'20		opposition	51 May 07 j 02:58	13° $\mathring{M}$ 27'47	0°17'23
				min. Earth dist.	51 May 06 j 23:10	13° $\mathring{M}$ 28'11	17.96107 AU
conjunction	43 Oct 04 j 19:08	9° $\mathring{A}$ 17'09	0°36'02	direct	51 Jul 23 j 08:17	11° $\mathring{M}$ 25'46	
minimum elong	43 Oct 04 j 19:08	9° $\mathring{A}$ 17'09	0°36'02		51 Oct 29 j 08:56	15° $\mathring{M}$	

conjunction	51 Nov 09 j 17:47	15° <del>M</del> 41'45	0°14'03	behind sun end	57 Dec 04 j 22:57	11° <del>2</del> 43'30	
minimum elong	51 Nov 09 j 17:47	15° <del>M</del> 41'45	0°14'02	max. Earth dist.	57 Dec 05 j 08:51	11° <del>2</del> 45'00	20.37607 AU
behind sun begin	51 Nov 09 j 14:21	15° <del>M</del> 41'14		retrograde	58 Mar 22 j 16:00	15° <del>2</del> 50'11	
behind sun end	51 Nov 09 j 21:13	15° <del>M</del> 42'16		opposition	58 Jun 07 j 16:52	13° <del>2</del> 50'34	0°-8'-7
max. Earth dist.	51 Nov 09 j 22:09	15° <del>M</del> 42'25	19.99236 AU	min. Earth dist.	58 Jun 07 j 00:51	13° <del>2</del> 52'11	18.40838 AU
retrograde	52 Feb 25 j 01:26	19° <del>M</del> 54'10		direct	58 Aug 23 j 16:33	11° <del>2</del> 50'58	
opposition	52 May 11 j 00:27	17° <del>M</del> 54'08	0°13'46				
min. Earth dist.	52 May 10 j 19:55	17° <del>M</del> 54'36	18.02343 AU	conjunction	58 Dec 09 j 01:57	15° <del>2</del> 56'26	0°-8'-57
direct	52 Jul 27 j 04:31	15° <del>M</del> 52'27		minimum elong	58 Dec 09 j 01:56	15° <del>2</del> 56'26	0°08'59
				behind sun begin	58 Dec 08 j 20:19	15° <del>2</del> 55'37	
conjunction	52 Nov 13 j 07:36	20° <del>M</del> 06'52	0°10'47	behind sun end	58 Dec 09 j 07:34	15° <del>2</del> 57'15	
minimum elong	52 Nov 13 j 07:35	20° <del>M</del> 06'52	0°10'48	max. Earth dist.	58 Dec 09 j 18:42	15° <del>2</del> 58'56	20.44065 AU
behind sun begin	52 Nov 13 j 02:32	20° <del>M</del> 06'07		retrograde	59 Mar 27 j 05:48	20° <del>2</del> 03'22	
behind sun end	52 Nov 13 j 12:39	20° <del>M</del> 07'37		opposition	59 Jun 12 j 08:59	18° <del>2</del> 03'51	0°-11'-38
max. Earth dist.	52 Nov 13 j 13:13	20° <del>M</del> 07'43	20.05499 AU	min. Earth dist.	59 Jun 11 j 14:53	18° <del>2</del> 05'41	18.47252 AU
retrograde	53 Feb 28 j 18:26	24° <del>M</del> 18'26		direct	59 Aug 28 j 06:52	16° <del>2</del> 04'38	
opposition	53 May 15 j 21:03	22° <del>M</del> 18'27	0°10'07				
min. Earth dist.	53 May 15 j 13:38	22° <del>M</del> 19'13	18.08624 AU	conjunction	59 Dec 13 j 10:48	20° <del>2</del> 08'47	0°-12'-5
direct	53 Aug 01 j 01:13	20° <del>M</del> 17'05		minimum elong	59 Dec 13 j 10:48	20° <del>2</del> 08'47	0°12'06
				behind sun begin	59 Dec 13 j 06:16	20° <del>2</del> 08'08	
conjunction	53 Nov 17 j 20:41	24° <del>M</del> 29'55	0°07'30	behind sun end	59 Dec 13 j 15:19	20° <del>2</del> 09'26	
minimum elong	53 Nov 17 j 20:41	24° <del>M</del> 29'56	0°07'30	max. Earth dist.	59 Dec 14 j 06:07	20° <del>2</del> 11'40	20.50406 AU
behind sun begin	53 Nov 17 j 14:42	24° <del>M</del> 29'02		retrograde	60 Mar 30 j 16:45	24° <del>2</del> 15'04	
behind sun end	53 Nov 18 j 02:41	24° <del>M</del> 30'49		min. Earth dist.	60 Jun 15 j 05:44	22° <del>2</del> 17'36	18.53513 AU
max. Earth dist.	53 Nov 18 j 05:04	24° <del>M</del> 31'11	20.11799 AU	opposition	60 Jun 16 j 00:40	22° <del>2</del> 15'42	0°-15'-4
retrograde	54 Mar 05 j 08:55	28° <del>M</del> 40'38		direct	60 Aug 31 j 20:39	20° <del>2</del> 16'52	
opposition	54 May 20 j 16:53	26° <del>M</del> 40'41	0°06'26				
min. Earth dist.	54 May 20 j 08:33	26° <del>M</del> 41'32	18.14960 AU	conjunction	60 Dec 16 j 18:54	24° <del>2</del> 19'43	0°-15'-8
direct	54 Aug 05 j 20:30	24° <del>M</del> 39'38		minimum elong	60 Dec 16 j 18:54	24° <del>2</del> 19'43	0°15'10
				behind sun begin	60 Dec 16 j 16:27	24° <del>2</del> 19'22	
conjunction	54 Nov 22 j 08:48	28° <del>M</del> 50'56	0°04'12	behind sun end	60 Dec 16 j 21:22	24° <del>2</del> 20'04	
minimum elong	54 Nov 22 j 08:48	28° <del>M</del> 50'55	0°04'12	max. Earth dist.	60 Dec 17 j 14:32	24° <del>2</del> 22'38	20.56570 AU
behind sun begin	54 Nov 22 j 02:21	28° <del>M</del> 49'58		retrograde	61 Apr 04 j 05:51	28° <del>2</del> 25'24	
behind sun end	54 Nov 22 j 15:14	28° <del>M</del> 51'53		opposition	61 Jun 20 j 15:38	26° <del>2</del> 26'09	0°-18'-24
max. Earth dist.	54 Nov 22 j 18:18	28° <del>M</del> 52'21	20.18172 AU	min. Earth dist.	61 Jun 19 j 19:11	26° <del>2</del> 28'12	18.59569 AU
	54 Dec 11 j 12:49	0° <del>2</del>		direct	61 Sep 05 j 09:13	24° <del>2</del> 27'40	
retrograde	55 Mar 10 j 00:31	3° <del>2</del> 00'49					
opposition	55 May 25 j 11:54	1° <del>2</del> 00'54	0°02'45	conjunction	61 Dec 21 j 02:51	28° <del>2</del> 29'19	0°-18'-6
min. Earth dist.	55 May 25 j 00:39	1° <del>2</del> 02'03	18.21369 AU	minimum elong	61 Dec 21 j 02:51	28° <del>2</del> 29'19	0°18'07
	55 Jun 20 j 12:55	30° <del>R</del>		max. Earth dist.	61 Dec 22 j 00:37	28° <del>2</del> 32'33	20.62479 AU
direct	55 Aug 10 j 15:05	29° <del>M</del> 00'11			62 Jan 16 j 05:25	0° <del>2</del>	
	55 Sep 28 j 11:29	0° <del>2</del>		retrograde	62 Apr 08 j 16:06	2° <del>2</del> 34'25	
				min. Earth dist.	62 Jun 24 j 08:49	0° <del>2</del> 37'23	18.65327 AU
conjunction	55 Nov 26 j 20:09	3° <del>2</del> 09'57	0°00'51	opposition	62 Jun 25 j 05:48	0° <del>2</del> 35'17	0°-21'-38
minimum elong	55 Nov 26 j 20:09	3° <del>2</del> 09'57	0°00'51		62 Jul 10 j 02:33	30° <del>R</del> <del>2</del>	
behind sun begin	55 Nov 26 j 13:38	3° <del>2</del> 08'59		direct	62 Sep 09 j 21:40	28° <del>2</del> 37'08	
behind sun end	55 Nov 27 j 02:41	3° <del>2</del> 10'55			62 Nov 06 j 23:59	0° <del>2</del>	
max. Earth dist.	55 Nov 27 j 08:33	3° <del>2</del> 11'49	20.24604 AU				
desc. node	56 Feb 26 j 21:29	7° <del>2</del> 12'41		conjunction	62 Dec 25 j 10:14	2° <del>2</del> 37'38	0°-20'-58
retrograde	56 Mar 13 j 13:31	7° <del>2</del> 19'02		minimum elong	62 Dec 25 j 10:14	2° <del>2</del> 37'38	0°20'59
opposition	56 May 29 j 06:20	5° <del>2</del> 19'12	0°00'-54	max. Earth dist.	62 Dec 26 j 07:46	2° <del>2</del> 40'48	20.68069 AU
min. Earth dist.	56 May 28 j 17:57	5° <del>2</del> 20'28	18.27835 AU	retrograde	63 Apr 13 j 03:55	6° <del>2</del> 42'12	
direct	56 Aug 14 j 08:44	3° <del>2</del> 18'51		opposition	63 Jun 29 j 19:29	4° <del>2</del> 43'08	0°-24'-44
				min. Earth dist.	63 Jun 28 j 21:31	4° <del>2</del> 45'20	18.70746 AU
conjunction	56 Nov 30 j 06:44	7° <del>2</del> 27'08	0°-2'-31	direct	63 Sep 14 j 08:30	2° <del>2</del> 45'17	
minimum elong	56 Nov 30 j 06:43	7° <del>2</del> 27'08	0°02'32				
behind sun begin	56 Nov 30 j 00:12	7° <del>2</del> 26'10		conjunction	63 Dec 29 j 17:14	6° <del>2</del> 44'41	0°-23'-42
behind sun end	56 Nov 30 j 13:15	7° <del>2</del> 28'05		minimum elong	63 Dec 29 j 17:14	6° <del>2</del> 44'41	0°23'43
max. Earth dist.	56 Nov 30 j 20:05	7° <del>2</del> 29'08	20.31101 AU	max. Earth dist.	63 Dec 30 j 16:37	6° <del>2</del> 48'07	20.73282 AU
retrograde	57 Mar 18 j 04:05	11° <del>2</del> 35'28		retrograde	64 Apr 16 j 13:44	10° <del>2</del> 48'45	
opposition	57 Jun 02 j 23:55	9° <del>2</del> 35'43	0°-4'-32	min. Earth dist.	64 Jul 02 j 10:06	8° <del>2</del> 51'58	18.75756 AU
min. Earth dist.	57 Jun 02 j 08:52	9° <del>2</del> 37'15	18.34350 AU	opposition	64 Jul 03 j 08:35	8° <del>2</del> 49'43	0°-27'-41
direct	57 Aug 19 j 01:06	7° <del>2</del> 35'44		direct	64 Sep 17 j 20:08	6° <del>2</del> 52'08	
conjunction	57 Dec 04 j 16:41	11° <del>2</del> 42'35	0°-5'-46	conjunction	65 Jan 01 j 23:48	10° <del>2</del> 50'28	0°-26'-18
minimum elong	57 Dec 04 j 16:41	11° <del>2</del> 42'35	0°05'47	minimum elong	65 Jan 01 j 23:47	10° <del>2</del> 50'28	0°26'18
behind sun begin	57 Dec 04 j 10:25	11° <del>2</del> 41'40		max. Earth dist.	65 Jan 02 j 22:43	10° <del>2</del> 53'50	20.78090 AU

retrograde	65 Apr 21 j 00:12	14°☾54'04			73 Mar 11 j 04:14	15°☾	
opposition	65 Jul 07 j 20:57	12°☾55'03	0°-30'-28	retrograde	73 May 23 j 23:17	17°☾01'38	
min. Earth dist.	65 Jul 06 j 21:53	12°☾57'21	18.80368 AU	min. Earth dist.	73 Aug 09 j 02:01	15°☾05'02	19.04673 AU
direct	65 Sep 22 j 05:22	10°☾57'39		opposition	73 Aug 10 j 03:09	15°☾02'31	0°-46'-2
					73 Aug 11 j 04:21	15°☾	
conjunction	66 Jan 06 j 06:06	14°☾55'01	0°-28'-45	direct	73 Oct 24 j 16:02	13°☾06'18	
minimum elong	66 Jan 06 j 06:05	14°☾55'01	0°28'47		74 Jan 01 j 21:06	15°☾	
max. Earth dist.	66 Jan 07 j 06:42	14°☾58'36	20.82489 AU				
retrograde	66 Apr 25 j 09:19	18°☾58'09		conjunction	74 Feb 07 j 00:06	16°☾58'48	0°-42'-9
min. Earth dist.	66 Jul 11 j 09:02	17°☾01'28	18.84566 AU	minimum elong	74 Feb 07 j 00:06	16°☾58'48	0°42'09
opposition	66 Jul 12 j 08:37	16°☾59'07	0°-33'-6	max. Earth dist.	74 Feb 08 j 03:26	17°☾02'43	21.05380 AU
direct	66 Sep 26 j 15:39	15°☾01'54		retrograde	74 May 28 j 08:34	21°☾00'21	
				min. Earth dist.	74 Aug 13 j 09:54	19°☾03'47	19.06066 AU
conjunction	67 Jan 10 j 11:47	18°☾58'20	0°-31'-3	opposition	74 Aug 14 j 11:03	19°☾01'16	0°-47'-3
minimum elong	67 Jan 10 j 11:47	18°☾58'20	0°31'04	direct	74 Oct 28 j 22:35	17°☾05'08	
max. Earth dist.	67 Jan 11 j 11:54	19°☾01'51	20.86501 AU				
retrograde	67 Apr 29 j 18:48	23°☾01'05		conjunction	75 Feb 11 j 05:20	20°☾57'26	0°-42'-58
opposition	67 Jul 16 j 19:41	21°☾02'00	0°-35'-32	minimum elong	75 Feb 11 j 05:20	20°☾57'26	0°42'59
min. Earth dist.	67 Jul 15 j 19:40	21°☾04'24	18.88411 AU	max. Earth dist.	75 Feb 12 j 07:10	21°☾01'08	21.06538 AU
direct	67 Sep 30 j 23:48	19°☾04'56		retrograde	75 Jun 01 j 16:42	24°☾59'04	
				opposition	75 Aug 18 j 18:53	22°☾59'57	0°-47'-50
conjunction	68 Jan 14 j 17:24	23°☾00'32	0°-33'-10	min. Earth dist.	75 Aug 17 j 18:52	23°☾02'22	19.06982 AU
minimum elong	68 Jan 14 j 17:24	23°☾00'32	0°33'12	direct	75 Nov 02 j 03:00	21°☾03'53	
max. Earth dist.	68 Jan 15 j 19:16	23°☾04'18	20.90171 AU				
retrograde	68 May 03 j 03:20	27°☾02'55		conjunction	76 Feb 15 j 11:07	24°☾56'05	0°-43'-34
min. Earth dist.	68 Jul 19 j 05:25	25°☾06'18	18.91923 AU	minimum elong	76 Feb 15 j 11:07	24°☾56'05	0°43'35
opposition	68 Jul 20 j 06:09	25°☾03'50	0°-37'-47	max. Earth dist.	76 Feb 16 j 13:23	24°☾59'50	21.07189 AU
direct	68 Oct 04 j 08:11	23°☾06'55		retrograde	76 Jun 05 j 01:51	28°☾57'47	
				min. Earth dist.	76 Aug 21 j 02:37	27°☾01'02	19.07357 AU
conjunction	69 Jan 17 j 22:33	27°☾01'45	0°-35'-8	opposition	76 Aug 22 j 02:20	26°☾58'39	0°-48'-23
minimum elong	69 Jan 17 j 22:33	27°☾01'45	0°35'09	direct	76 Nov 05 j 09:41	25°☾02'37	
max. Earth dist.	69 Jan 18 j 23:55	27°☾05'25	20.93530 AU				
	69 Mar 16 j 13:20	0°☾		conjunction	77 Feb 18 j 16:59	28°☾54'45	0°-43'-58
retrograde	69 May 07 j 12:35	1°☾03'52		minimum elong	77 Feb 18 j 16:59	28°☾54'45	0°43'59
	69 Jun 30 j 16:47	30°☾☾		max. Earth dist.	77 Feb 19 j 17:13	28°☾58'13	21.07286 AU
opposition	69 Jul 24 j 16:06	29°☾04'44	0°-39'-51		77 Mar 09 j 23:04	0°☾	
min. Earth dist.	69 Jul 23 j 15:09	29°☾07'13	18.95139 AU	retrograde	77 Jun 09 j 10:10	2°☾56'37	
direct	69 Oct 08 j 15:24	27°☾07'57		min. Earth dist.	77 Aug 25 j 11:37	0°☾59'37	19.07167 AU
	70 Jan 04 j 01:11	0°☾		opposition	77 Aug 26 j 09:45	0°☾57'24	0°-48'-42
					77 Sep 20 j 06:27	30°☾☾	
conjunction	70 Jan 22 j 03:49	1°☾02'09	0°-36'-54	direct	77 Nov 09 j 13:59	29°☾01'18	
minimum elong	70 Jan 22 j 03:49	1°☾02'09	0°36'55		77 Dec 28 j 03:09	0°☾	
max. Earth dist.	70 Jan 23 j 06:42	1°☾06'02	20.96581 AU				
retrograde	70 May 11 j 21:00	5°☾04'01		conjunction	78 Feb 22 j 23:20	2°☾53'30	0°-44'-10
min. Earth dist.	70 Jul 27 j 23:47	3°☾07'26	18.98032 AU	minimum elong	78 Feb 22 j 23:20	2°☾53'30	0°44'11
opposition	70 Jul 29 j 01:18	3°☾04'53	0°-41'-42	max. Earth dist.	78 Feb 23 j 23:35	2°☾56'57	21.06804 AU
direct	70 Oct 12 j 22:17	1°☾08'15		retrograde	78 Jun 13 j 18:38	6°☾55'30	
				opposition	78 Aug 30 j 16:43	4°☾56'11	0°-48'-48
conjunction	71 Jan 26 j 08:46	5°☾01'53	0°-38'-30	min. Earth dist.	78 Aug 29 j 18:59	4°☾58'22	19.06393 AU
minimum elong	71 Jan 26 j 08:46	5°☾01'53	0°38'31	direct	78 Nov 13 j 20:37	3°☾00'01	
max. Earth dist.	71 Jan 27 j 10:54	5°☾05'39	20.99318 AU				
retrograde	71 May 16 j 05:52	9°☾03'36		conjunction	79 Feb 27 j 05:40	6°☾52'18	0°-44'-8
min. Earth dist.	71 Aug 01 j 08:56	7°☾07'01	19.00613 AU	minimum elong	79 Feb 27 j 05:40	6°☾52'18	0°44'08
opposition	71 Aug 02 j 10:21	7°☾04'28	0°-43'-21	max. Earth dist.	79 Feb 28 j 03:45	6°☾55'27	21.05768 AU
direct	71 Oct 17 j 04:26	5°☾07'59		retrograde	79 Jun 18 j 03:11	10°☾54'31	
				opposition	79 Sep 03 j 23:44	8°☾55'03	0°-48'-39
conjunction	72 Jan 30 j 13:45	9°☾01'09	0°-39'-54	min. Earth dist.	79 Sep 03 j 03:42	8°☾57'05	19.05098 AU
minimum elong	72 Jan 30 j 13:45	9°☾01'09	0°39'55	direct	79 Nov 18 j 00:52	6°☾58'45	
max. Earth dist.	72 Jan 31 j 17:15	9°☾05'06	21.01722 AU				
retrograde	72 May 19 j 14:47	13°☾02'45		conjunction	80 Mar 02 j 12:23	10°☾51'14	0°-43'-53
opposition	72 Aug 05 j 18:56	11°☾03'38	0°-44'-48	minimum elong	80 Mar 02 j 12:23	10°☾51'14	0°43'55
min. Earth dist.	72 Aug 04 j 17:06	11°☾06'13	19.02831 AU	max. Earth dist.	80 Mar 03 j 10:35	10°☾54'24	21.04228 AU
direct	72 Oct 20 j 11:02	9°☾07'17		retrograde	80 Jun 21 j 11:31	14°☾53'42	
				min. Earth dist.	80 Sep 06 j 10:46	12°☾56'05	19.03316 AU
conjunction	73 Feb 02 j 18:46	13°☾00'04	0°-41'-7	opposition	80 Sep 07 j 06:28	12°☾54'05	0°-48'-15
minimum elong	73 Feb 02 j 18:46	13°☾00'04	0°41'09	direct	80 Nov 21 j 07:03	10°☾57'38	
max. Earth dist.	73 Feb 03 j 21:13	13°☾03'52	21.03756 AU				



conjunction	81 Mar 06 j 19:23	14° <del>✕</del> 50'24	0°-43'-26	conjunction	89 Apr 08 j 22:47	17° <del>Υ</del> 11'02	0°-32'-24
minimum elong	81 Mar 06 j 19:23	14° <del>✕</del> 50'24	0°43'26	minimum elong	89 Apr 08 j 22:47	17° <del>Υ</del> 11'02	0°32'25
max. Earth dist.	81 Mar 07 j 15:26	14° <del>✕</del> 53'15	21.02232 AU	max. Earth dist.	89 Apr 09 j 07:30	17° <del>Υ</del> 12'17	20.73684 AU
retrograde	81 Jun 25 j 20:13	18° <del>✕</del> 53'10		retrograde	89 Jul 29 j 04:41	21° <del>Υ</del> 18'15	
opposition	81 Sep 11 j 13:04	16° <del>✕</del> 53'24	0°-47'-38	opposition	89 Oct 13 j 21:53	19° <del>Υ</del> 17'42	0°-34'-36
min. Earth dist.	81 Sep 10 j 19:10	16° <del>✕</del> 55'13	19.01116 AU	min. Earth dist.	89 Oct 13 j 15:08	19° <del>Υ</del> 18'24	18.71161 AU
direct	81 Nov 25 j 11:25	14° <del>✕</del> 56'47		direct	89 Dec 27 j 11:25	17° <del>Υ</del> 19'32	
conjunction	82 Mar 11 j 02:55	18° <del>✕</del> 49'56	0°-42'-45	conjunction	90 Apr 13 j 11:35	21° <del>Υ</del> 19'08	0°-30'-9
minimum elong	82 Mar 11 j 02:55	18° <del>✕</del> 49'56	0°42'47	minimum elong	90 Apr 13 j 11:35	21° <del>Υ</del> 19'08	0°30'10
max. Earth dist.	82 Mar 11 j 23:00	18° <del>✕</del> 52'48	20.99837 AU	max. Earth dist.	90 Apr 13 j 19:04	21° <del>Υ</del> 20'13	20.68535 AU
retrograde	82 Jun 30 j 05:08	22° <del>✕</del> 53'03		retrograde	90 Aug 02 j 17:59	25° <del>Υ</del> 27'03	
opposition	82 Sep 15 j 19:37	20° <del>✕</del> 53'09	0°-46'-47	opposition	90 Oct 18 j 06:15	23° <del>Υ</del> 26'24	0°-32'-2
min. Earth dist.	82 Sep 15 j 02:00	20° <del>✕</del> 54'57	18.98527 AU	min. Earth dist.	90 Oct 18 j 00:24	23° <del>Υ</del> 27'00	18.65804 AU
direct	82 Nov 29 j 17:12	18° <del>✕</del> 56'22		direct	90 Dec 31 j 20:32	21° <del>Υ</del> 27'55	
conjunction	83 Mar 15 j 10:32	22° <del>✕</del> 49'59	0°-41'-53	conjunction	91 Apr 18 j 00:51	25° <del>Υ</del> 28'38	0°-27'-44
minimum elong	83 Mar 15 j 10:32	22° <del>✕</del> 49'59	0°41'53	minimum elong	91 Apr 18 j 00:51	25° <del>Υ</del> 28'38	0°27'45
max. Earth dist.	83 Mar 16 j 04:29	22° <del>✕</del> 52'33	20.97075 AU	max. Earth dist.	91 Apr 18 j 05:12	25° <del>Υ</del> 29'15	20.62988 AU
retrograde	83 Jul 04 j 13:53	26° <del>✕</del> 53'34		retrograde	91 Aug 07 j 05:35	29° <del>Υ</del> 37'16	
min. Earth dist.	83 Sep 19 j 10:35	24° <del>✕</del> 55'08	18.95600 AU	opposition	91 Oct 22 j 15:10	27° <del>Υ</del> 36'27	0°-29'-16
opposition	83 Sep 20 j 02:23	24° <del>✕</del> 53'31	0°-45'-42	min. Earth dist.	91 Oct 22 j 12:08	27° <del>Υ</del> 36'46	18.60073 AU
direct	83 Dec 03 j 21:57	22° <del>✕</del> 56'34		direct	92 Jan 05 j 04:06	25° <del>Υ</del> 37'37	
conjunction	84 Mar 18 j 19:01	26° <del>✕</del> 50'46	0°-40'-47	conjunction	92 Apr 21 j 15:11	29° <del>Υ</del> 39'30	0°-25'-9
minimum elong	84 Mar 18 j 19:01	26° <del>✕</del> 50'46	0°40'48	minimum elong	92 Apr 21 j 15:11	29° <del>Υ</del> 39'30	0°25'11
max. Earth dist.	84 Mar 19 j 12:53	26° <del>✕</del> 53'19	20.93987 AU	max. Earth dist.	92 Apr 21 j 18:12	29° <del>Υ</del> 39'56	20.57096 AU
	84 May 20 j 18:49	0° <del>Υ</del>			92 Apr 27 j 12:32	0° <del>♄</del>	
retrograde	84 Jul 08 j 00:01	0° <del>Υ</del> 54'49		retrograde	92 Aug 10 j 19:51	3° <del>♄</del> 48'51	
	84 Aug 26 j 04:38	30° <del>♄</del>			92 Oct 26 j 00:09	1° <del>♄</del> 47'51	0°-26'-20
opposition	84 Sep 23 j 08:58	28° <del>✕</del> 54'41	0°-44'-23	opposition	92 Oct 25 j 22:03	1° <del>♄</del> 48'05	18.54016 AU
min. Earth dist.	84 Sep 22 j 17:34	28° <del>✕</del> 56'15	18.92343 AU	min. Earth dist.	92 Dec 18 j 15:04	30° <del>♄</del>	
direct	84 Dec 07 j 04:01	26° <del>✕</del> 57'33		direct	93 Jan 08 j 14:28	29° <del>Υ</del> 48'37	
	85 Mar 07 j 18:47	0° <del>Υ</del>			93 Jan 29 j 07:42	0° <del>♄</del>	
conjunction	85 Mar 23 j 03:56	0° <del>Υ</del> 52'26	0°-39'-30	conjunction	93 Apr 26 j 06:09	3° <del>♄</del> 51'44	0°-22'-26
minimum elong	85 Mar 23 j 03:56	0° <del>Υ</del> 52'26	0°39'32	minimum elong	93 Apr 26 j 06:09	3° <del>♄</del> 51'44	0°22'26
max. Earth dist.	85 Mar 23 j 19:24	0° <del>Υ</del> 54'39	20.90578 AU	max. Earth dist.	93 Apr 26 j 06:13	3° <del>♄</del> 51'45	20.50903 AU
retrograde	85 Jul 12 j 09:01	4° <del>Υ</del> 57'02		retrograde	93 Aug 15 j 08:15	8° <del>♄</del> 01'50	
opposition	85 Sep 27 j 15:56	2° <del>Υ</del> 56'48	0°-42'-52	opposition	93 Oct 30 j 09:46	6° <del>♄</del> 00'38	0°-23'-15
min. Earth dist.	85 Sep 27 j 02:38	2° <del>Υ</del> 58'10	18.88777 AU	min. Earth dist.	93 Oct 30 j 10:27	6° <del>♄</del> 00'33	18.47707 AU
direct	85 Dec 11 j 08:51	0° <del>Υ</del> 59'29		direct	94 Jan 12 j 22:51	4° <del>♄</del> 00'59	
conjunction	86 Mar 27 j 13:34	4° <del>Υ</del> 55'09	0°-38'-1	conjunction	94 Apr 30 j 21:48	8° <del>♄</del> 05'22	0°-19'-34
minimum elong	86 Mar 27 j 13:34	4° <del>Υ</del> 55'09	0°38'02	minimum elong	94 Apr 30 j 21:48	8° <del>♄</del> 05'22	0°19'35
max. Earth dist.	86 Mar 28 j 04:42	4° <del>Υ</del> 57'19	20.86857 AU	max. Earth dist.	94 Apr 30 j 20:36	8° <del>♄</del> 05'12	20.44501 AU
retrograde	86 Jul 16 j 20:13	9° <del>Υ</del> 00'20		retrograde	94 Aug 19 j 23:49	12° <del>♄</del> 16'12	
opposition	86 Oct 01 j 22:53	7° <del>Υ</del> 00'02	0°-41'-7	opposition	94 Nov 03 j 19:38	10° <del>♄</del> 14'49	0°-20'00
min. Earth dist.	86 Oct 01 j 10:06	7° <del>Υ</del> 01'21	18.84888 AU	min. Earth dist.	94 Nov 03 j 21:00	10° <del>♄</del> 14'40	18.41220 AU
direct	86 Dec 15 j 15:53	5° <del>Υ</del> 02'33		direct	95 Jan 17 j 10:37	8° <del>♄</del> 14'44	
conjunction	87 Mar 31 j 23:46	8° <del>Υ</del> 59'06	0°-36'-20	conjunction	95 May 05 j 14:14	12° <del>♄</del> 20'27	0°-16'-35
minimum elong	87 Mar 31 j 23:46	8° <del>Υ</del> 59'06	0°36'22	minimum elong	95 May 05 j 14:14	12° <del>♄</del> 20'27	0°16'35
max. Earth dist.	87 Apr 01 j 12:17	9° <del>Υ</del> 00'53	20.82817 AU	max. Earth dist.	95 May 05 j 10:29	12° <del>♄</del> 19'55	20.37952 AU
retrograde	87 Jul 21 j 05:48	13° <del>Υ</del> 04'56		retrograde	95 Jun 23 j 13:55	15° <del>♄</del>	
opposition	87 Oct 06 j 06:18	11° <del>Υ</del> 04'33	0°-39'-9	opposition	95 Aug 24 j 12:54	16° <del>♄</del> 32'03	
min. Earth dist.	87 Oct 05 j 19:56	11° <del>Υ</del> 05'37	18.80683 AU	min. Earth dist.	95 Oct 27 j 12:27	15° <del>♄</del>	
direct	87 Dec 19 j 21:01	9° <del>Υ</del> 06'52		direct	95 Nov 08 j 06:05	14° <del>♄</del> 30'29	0°-16'-38
conjunction	88 Apr 04 j 10:54	13° <del>Υ</del> 04'22	0°-34'-28	conjunction	96 Jan 21 j 20:03	12° <del>♄</del> 29'58	18.34634 AU
minimum elong	88 Apr 04 j 10:54	13° <del>Υ</del> 04'22	0°34'28	minimum elong	96 Apr 11 j 01:29	15° <del>♄</del>	
max. Earth dist.	88 Apr 04 j 22:40	13° <del>Υ</del> 06'03	20.78442 AU	max. Earth dist.			
retrograde	88 Jul 24 j 18:09	17° <del>Υ</del> 10'52		retrograde			
opposition	88 Oct 09 j 13:53	15° <del>Υ</del> 10'25	0°-36'-59	opposition			
min. Earth dist.	88 Oct 09 j 04:20	15° <del>Υ</del> 11'25	18.76114 AU	min. Earth dist.			
direct	88 Dec 23 j 05:09	13° <del>Υ</del> 12'32		direct			
conjunction				conjunction	96 May 09 j 07:34	16° <del>♄</del> 37'05	0°-13'-30
				minimum elong	96 May 09 j 07:33	16° <del>♄</del> 37'04	0°13'30
				behind sun begin	96 May 09 j 03:57	16° <del>♄</del> 36'34	
				behind sun end	96 May 09 j 11:09	16° <del>♄</del> 37'35	
				max. Earth dist.	96 May 09 j 02:25	16° <del>♄</del> 36'20	20.31344 AU

retrograde	96 Aug 28 j 05:46	20°♄49'27	
opposition	96 Nov 11 j 16:58	18°♄47'43	0°-13'-10
min. Earth dist.	96 Nov 11 j 21:34	18°♄47'13	18.28007 AU
direct	97 Jan 25 j 09:02	16°♄46'47	
conjunction	97 May 14 j 01:39	20°♄55'20	0°-10'-19
minimum elong	97 May 14 j 01:39	20°♄55'20	0°10'20
behind sun begin	97 May 13 j 20:21	20°♄54'34	
behind sun end	97 May 14 j 06:56	20°♄56'05	
max. Earth dist.	97 May 13 j 18:15	20°♄54'15	20.24709 AU
retrograde	97 Sep 01 j 20:04	25°♄08'30	
opposition	97 Nov 16 j 04:33	23°♄06'37	0°-9'-36
min. Earth dist.	97 Nov 16 j 11:38	23°♄05'52	18.21394 AU
direct	98 Jan 29 j 20:07	21°♄05'17	
conjunction	98 May 18 j 20:33	25°♄15'19	0°-7'-4
minimum elong	98 May 18 j 20:33	25°♄15'19	0°07'05
behind sun begin	98 May 18 j 14:19	25°♄14'25	
behind sun end	98 May 19 j 02:47	25°♄16'13	
max. Earth dist.	98 May 18 j 11:39	25°♄14'01	20.18131 AU
retrograde	98 Sep 06 j 13:53	29°♄29'18	
opposition	98 Nov 20 j 16:41	27°♄27'19	0°-5'-57
min. Earth dist.	98 Nov 21 j 00:13	27°♄26'31	18.14854 AU
direct	99 Feb 03 j 10:07	25°♄25'38	
conjunction	99 May 23 j 16:13	29°♄37'10	0°-3'-46
minimum elong	99 May 23 j 16:13	29°♄37'10	0°03'47
behind sun begin	99 May 23 j 09:31	29°♄36'12	
behind sun end	99 May 23 j 22:56	29°♄38'09	
max. Earth dist.	99 May 23 j 05:30	29°♄35'36	20.11630 AU
	99 May 30 j 02:05	0°♂	
retrograde	99 Sep 11 j 05:59	3°♂52'00	
opposition	99 Nov 25 j 05:41	1°♂49'57	0°-2'-14
min. Earth dist.	99 Nov 25 j 15:37	1°♂48'53	18.08405 AU
	100 Jan 17 j 13:14	30°♂	
direct	100 Feb 07 j 22:54	29°♄47'54	
	100 Feb 29 j 08:08	0°♂	
conjunction	100 May 27 j 12:56	4°♂01'01	0°00'-21
minimum elong	100 May 27 j 12:56	4°♂01'01	0°00'21
behind sun begin	100 May 27 j 06:11	4°♂00'02	
behind sun end	100 May 27 j 19:41	4°♂01'59	
max. Earth dist.	100 May 27 j 00:21	3°♂59'09	20.05240 AU
asc. node	100 Jul 04 j 06:41	6°♂10'13	
retrograde	100 Sep 15 j 00:59	8°♂16'40	
opposition	100 Nov 28 j 19:06	6°♂14'35	0°01'30
min. Earth dist.	100 Nov 29 j 05:44	6°♂13'26	18.02063 AU

	100 Jan 17 j 13:14	30°R8		max. Earth dist.	106 Jun 24 j 10:08	1°02'01	19.68778 AU
direct	100 Feb 07 j 22:54	29°847'54					
	100 Feb 29 j 08:08	0°II		conjunction	106 Jun 25 j 10:02	1°05'39	0°19'43
				minimum elong	106 Jun 25 j 10:01	1°05'39	0°19'42
conjunction	100 May 27 j 12:56	4°II01'01	0°00'-21	retrograde	106 Oct 12 j 22:43	5°025'41	
minimum elong	100 May 27 j 12:56	4°II01'01	0°00'21	opposition	106 Dec 25 j 20:42	3°023'20	0°23'38
behind sun begin	100 May 27 j 06:11	4°II00'02		min. Earth dist.	106 Dec 26 j 16:26	3°021'11	17.65994 AU
behind sun end	100 May 27 j 19:41	4°II01'59		direct	107 Mar 11 j 03:54	1°018'49	
max. Earth dist.	100 May 27 j 00:21	3°II59'09	20.05240 AU	max. Earth dist.	107 Jun 29 j 11:46	5°038'45	19.63246 AU
asc. node	100 Jul 04 j 06:41	6°II10'13					
retrograde	100 Sep 15 j 00:59	8°II16'40		conjunction	107 Jun 30 j 11:50	5°042'26	0°22'48
opposition	100 Nov 28 j 19:06	6°II14'35	0°01'30	minimum elong	107 Jun 30 j 11:50	5°042'26	0°22'48
min. Earth dist.	100 Nov 29 j 05:44	6°II13'26	18.02063 AU	retrograde	107 Oct 17 j 19:56	10°030'00	
direct	101 Feb 11 j 14:18	4°II12'12		opposition	107 Dec 30 j 15:32	8°000'35	0°27'01
				min. Earth dist.	107 Dec 31 j 12:32	7°058'18	17.60607 AU
conjunction	101 Jun 01 j 10:35	8°II26'55	0°03'07	direct	108 Mar 15 j 01:09	5°055'43	
minimum elong	101 Jun 01 j 10:35	8°II26'55	0°03'07	max. Earth dist.	108 Jul 03 j 11:40	10°016'34	19.58025 AU
behind sun begin	101 Jun 01 j 03:49	8°II25'56					
behind sun end	101 Jun 01 j 17:20	8°II27'54		conjunction	108 Jul 04 j 13:58	10°020'36	0°25'45
max. Earth dist.	101 May 31 j 20:23	8°II24'48	19.98935 AU	minimum elong	108 Jul 04 j 13:58	10°020'36	0°25'46
retrograde	101 Sep 19 j 18:43	12°II43'23		retrograde	108 Oct 21 j 17:58	14°041'40	
opposition	101 Dec 03 j 09:34	10°II41'18	0°05'17	opposition	109 Jan 03 j 10:53	12°039'11	0°30'14
min. Earth dist.	101 Dec 03 j 22:37	10°II39'53	17.95807 AU	min. Earth dist.	109 Jan 04 j 08:41	12°036'48	17.55580 AU
direct	102 Feb 16 j 05:05	8°II38'36		direct	109 Mar 19 j 23:23	10°033'57	
conjunction	102 Jun 06 j 08:50	12°II54'53	0°06'31	conjunction	109 Jul 09 j 16:36	15°000'02	0°28'33
minimum elong	102 Jun 06 j 08:49	12°II54'53	0°06'31	minimum elong	109 Jul 09 j 16:36	15°000'02	0°28'32
behind sun begin	102 Jun 06 j 02:28	12°II53'57		max. Earth dist.	109 Jul 08 j 14:44	14°056'03	19.53189 AU
behind sun end	102 Jun 06 j 15:11	12°II55'48		retrograde	109 Oct 26 j 16:32	19°021'32	
max. Earth dist.	102 Jun 05 j 16:23	12°II52'25	19.92722 AU	opposition	110 Jan 08 j 07:05	17°019'00	0°33'15
retrograde	102 Sep 24 j 14:33	17°II12'10		min. Earth dist.	110 Jan 09 j 05:20	17°016'34	17.50965 AU
opposition	102 Dec 08 j 00:41	15°II10'03	0°09'03	direct	110 Mar 24 j 21:52	15°013'28	
min. Earth dist.	102 Dec 08 j 14:32	15°II08'33	17.89635 AU				
direct	103 Feb 20 j 22:16	13°II07'01		conjunction	110 Jul 14 j 19:11	19°040'38	0°31'09
				minimum elong	110 Jul 14 j 19:11	19°040'38	0°31'10
conjunction	103 Jun 11 j 08:10	17°II24'52	0°09'53	max. Earth dist.	110 Jul 13 j 15:45	19°036'23	19.48809 AU
minimum elong	103 Jun 11 j 08:10	17°II24'52	0°09'53	retrograde	110 Oct 31 j 15:22	24°002'33	
behind sun begin	103 Jun 11 j 02:42	17°II24'04		opposition	111 Jan 13 j 03:53	21°059'58	0°36'04
behind sun end	103 Jun 11 j 13:37	17°II25'40		min. Earth dist.	111 Jan 14 j 02:46	21°057'28	17.46850 AU
max. Earth dist.	103 Jun 10 j 14:21	17°II22'11	19.86571 AU	direct	111 Mar 29 j 20:35	19°054'09	
retrograde	103 Sep 29 j 09:36	21°II42'54					
opposition	103 Dec 12 j 16:36	19°II40'45	0°12'49	conjunction	111 Jul 19 j 22:23	24°022'21	0°33'35
min. Earth dist.	103 Dec 13 j 08:45	19°II39'00	17.83528 AU	minimum elong	111 Jul 19 j 22:23	24°022'21	0°33'34
direct	104 Feb 25 j 15:40	17°II37'22		max. Earth dist.	111 Jul 18 j 19:43	24°018'12	19.44952 AU
max. Earth dist.	104 Jun 14 j 11:40	21°II53'38	19.80510 AU	retrograde	111 Nov 05 j 14:54	28°044'34	
				opposition	112 Jan 18 j 01:14	26°042'00	0°38'39
conjunction	104 Jun 15 j 08:11	21°II56'44	0°13'14	min. Earth dist.	112 Jan 18 j 23:55	26°039'31	17.43265 AU
minimum elong	104 Jun 15 j 08:10	21°II56'44	0°13'13	direct	112 Apr 02 j 20:41	24°035'59	
behind sun begin	104 Jun 15 j 04:22	21°II56'11		max. Earth dist.	112 Jul 22 j 22:01	29°000'47	19.41650 AU
behind sun end	104 Jun 15 j 11:59	21°II57'18					
retrograde	104 Oct 03 j 05:44	26°II15'30		conjunction	112 Jul 24 j 01:44	29°005'06	0°35'47
opposition	104 Dec 16 j 09:15	24°II13'17	0°16'30	minimum elong	112 Jul 24 j 01:44	29°005'06	0°35'46
min. Earth dist.	104 Dec 17 j 02:19	24°II11'26	17.77521 AU		112 Aug 07 j 20:38	0°0	
direct	105 Mar 01 j 11:00	22°II09'32		retrograde	112 Nov 09 j 13:46	3°027'37	
max. Earth dist.	105 Jun 19 j 11:31	26°II27'08	19.74552 AU	opposition	113 Jan 21 j 23:24	1°025'06	0°40'59
				min. Earth dist.	113 Jan 22 j 22:42	1°022'33	17.40265 AU
conjunction	105 Jun 20 j 08:53	26°II30'23	0°16'31		113 Feb 26 j 14:22	30°R0	
minimum elong	105 Jun 20 j 08:53	26°II30'23	0°16'31	direct	113 Apr 07 j 20:00	29°018'55	
	105 Aug 25 j 15:36	0°0			113 May 17 j 13:20	0°0	
retrograde	105 Oct 08 j 01:47	0°049'47		max. Earth dist.	113 Jul 28 j 02:22	3°044'41	19.38937 AU
	105 Nov 21 j 07:36	30°RII					
opposition	105 Dec 21 j 02:42	28°II47'31	0°20'08	conjunction	113 Jul 29 j 05:11	3°048'52	0°37'45
min. Earth dist.	105 Dec 21 j 21:35	28°II45'28	17.71645 AU	minimum elong	113 Jul 29 j 05:11	3°048'52	0°37'45
direct	106 Mar 06 j 06:43	26°II43'24		retrograde	113 Nov 14 j 14:14	8°011'37	
	106 Jun 07 j 07:22	0°0		opposition	114 Jan 26 j 22:06	6°009'11	0°43'04

min. Earth dist.	114 Jan 27 j 20:42	6°♂06'42	17.37831 AU	minimum elong	121 Sep 06 j 06:12	11°♂57'35	0°43'36
direct	114 Apr 12 j 22:10	4°♂02'56		retrograde	121 Dec 22 j 12:50	16°♂19'32	
max. Earth dist.	114 Aug 02 j 05:38	8°♂029'20	19.36784 AU	opposition	122 Mar 06 j 04:42	14°♂17'48	0°48'20
				min. Earth dist.	122 Mar 06 j 23:45	14°♂15'45	17.36257 AU
conjunction	114 Aug 03 j 08:48	8°♂033'35	0°39'29	direct	122 May 22 j 00:32	12°♂11'43	
minimum elong	114 Aug 03 j 08:48	8°♂033'35	0°39'28	max. Earth dist.	122 Sep 10 j 11:03	16°♂39'33	19.37142 AU
retrograde	114 Nov 19 j 12:58	12°♂056'30					
opposition	115 Jan 31 j 21:23	10°♂054'10	0°44'51	conjunction	122 Sep 11 j 07:34	16°♂42'47	0°43'00
min. Earth dist.	115 Feb 01 j 20:47	10°♂051'36	17.35962 AU	minimum elong	122 Sep 11 j 07:34	16°♂42'47	0°43'00
direct	115 Apr 17 j 22:37	8°♂047'51		retrograde	122 Dec 27 j 11:42	21°♂04'15	
max. Earth dist.	115 Aug 07 j 09:53	13°♂014'56	19.35177 AU	opposition	123 Mar 11 j 06:22	19°♂02'36	0°47'28
				min. Earth dist.	123 Mar 12 j 00:54	19°♂00'36	17.38230 AU
conjunction	115 Aug 08 j 12:32	13°♂019'06	0°40'56	direct	123 May 27 j 03:32	16°♂56'37	
minimum elong	115 Aug 08 j 12:32	13°♂019'06	0°40'57				
	115 Sep 04 j 23:16	15°♂		conjunction	123 Sep 16 j 08:04	21°♂27'04	0°42'05
retrograde	115 Nov 24 j 14:01	17°♂042'07		minimum elong	123 Sep 16 j 08:04	21°♂27'04	0°42'06
opposition	116 Feb 05 j 21:14	15°♂039'54	0°46'20	max. Earth dist.	123 Sep 15 j 12:03	21°♂23'55	19.39393 AU
min. Earth dist.	116 Feb 06 j 19:42	15°♂037'27	17.34599 AU	retrograde	124 Jan 01 j 11:02	25°♂48'03	
	116 Feb 21 j 09:29	15°♂		opposition	124 Mar 15 j 08:03	23°♂46'27	0°46'18
direct	116 Apr 22 j 02:32	13°♂033'35		min. Earth dist.	124 Mar 16 j 00:32	23°♂44'40	17.40758 AU
	116 Jun 19 j 16:00	15°♂		direct	124 May 31 j 06:33	21°♂40'37	
conjunction	116 Aug 12 j 16:14	18°♂005'15	0°42'08	conjunction	124 Sep 20 j 07:53	26°♂10'20	0°40'54
minimum elong	116 Aug 12 j 16:14	18°♂005'15	0°42'08	minimum elong	124 Sep 20 j 07:53	26°♂10'20	0°40'54
max. Earth dist.	116 Aug 11 j 13:50	18°♂001'07	19.34050 AU	max. Earth dist.	124 Sep 19 j 14:56	26°♂07'40	19.42202 AU
retrograde	116 Nov 28 j 12:51	22°♂028'18			124 Dec 03 j 01:42	0°♂	
opposition	117 Feb 09 j 21:46	20°♂026'11	0°47'31	retrograde	125 Jan 05 j 09:43	30°♂30'45	
min. Earth dist.	117 Feb 10 j 21:00	20°♂023'39	17.33720 AU		125 Feb 08 j 12:46	30°♂	
direct	117 Apr 27 j 04:15	18°♂019'52		opposition	125 Mar 20 j 09:47	28°♂29'15	0°44'49
				min. Earth dist.	125 Mar 21 j 00:52	28°♂27'38	17.43843 AU
conjunction	117 Aug 17 j 19:45	22°♂051'49	0°43'02	direct	125 Jun 05 j 10:03	26°♂23'39	
minimum elong	117 Aug 17 j 19:45	22°♂051'49	0°43'02		125 Sep 11 j 07:19	0°♂	
max. Earth dist.	117 Aug 16 j 17:33	22°♂047'42	19.33409 AU				
retrograde	117 Dec 03 j 14:09	27°♂014'48		conjunction	125 Sep 25 j 06:52	0°♂52'30	0°39'27
opposition	118 Feb 14 j 22:36	25°♂012'47	0°48'21	minimum elong	125 Sep 25 j 06:52	0°♂52'30	0°39'27
min. Earth dist.	118 Feb 15 j 20:29	25°♂010'24	17.33306 AU	max. Earth dist.	125 Sep 24 j 14:50	0°♂49'59	19.45581 AU
direct	118 May 02 j 09:22	23°♂006'29		retrograde	126 Jan 10 j 07:32	5°♂12'21	
				opposition	126 Mar 25 j 11:09	3°♂10'57	0°43'03
conjunction	118 Aug 22 j 23:00	27°♂038'34	0°43'38	min. Earth dist.	126 Mar 26 j 00:13	3°♂09'33	17.47506 AU
minimum elong	118 Aug 22 j 23:00	27°♂038'34	0°43'38	direct	126 Jun 10 j 12:19	1°♂05'37	
max. Earth dist.	118 Aug 21 j 21:51	27°♂034'37	19.33217 AU				
	118 Oct 01 j 06:55	0°♂		conjunction	126 Sep 30 j 05:12	5°♂33'32	0°37'44
retrograde	118 Dec 08 j 12:51	2°♂01'24		minimum elong	126 Sep 30 j 05:12	5°♂33'32	0°37'44
opposition	119 Feb 19 j 23:54	29°♂059'29	0°48'52	max. Earth dist.	126 Sep 29 j 16:12	5°♂31'30	19.49517 AU
	119 Feb 19 j 19:07	30°♂		retrograde	127 Jan 15 j 05:27	9°♂52'45	
min. Earth dist.	119 Feb 20 j 22:21	29°♂057'03	17.33343 AU	opposition	127 Mar 30 j 12:27	7°♂51'31	0°41'00
direct	119 May 07 j 11:52	27°♂053'12		min. Earth dist.	127 Mar 30 j 23:41	7°♂50'19	17.51677 AU
	119 Jul 18 j 14:09	0°♂		direct	127 Jun 15 j 15:57	5°♂46'31	
max. Earth dist.	119 Aug 27 j 00:47	2°♂21'19	19.33487 AU				
				conjunction	127 Oct 05 j 02:41	10°♂13'24	0°35'48
conjunction	119 Aug 28 j 01:55	2°♂25'16	0°43'56	minimum elong	127 Oct 05 j 02:41	10°♂13'24	0°35'47
minimum elong	119 Aug 28 j 01:55	2°♂25'16	0°43'55	max. Earth dist.	127 Oct 04 j 14:50	10°♂11'33	19.53935 AU
retrograde	119 Dec 13 j 13:46	6°♂47'52		retrograde	128 Jan 20 j 02:01	14°♂31'58	
opposition	120 Feb 25 j 01:13	4°♂46'02	0°49'01	opposition	128 Apr 03 j 13:30	12°♂30'54	0°38'42
min. Earth dist.	120 Feb 25 j 22:05	4°♂43'46	17.33835 AU	min. Earth dist.	128 Apr 03 j 23:06	12°♂29'53	17.56318 AU
direct	120 May 11 j 17:13	2°♂39'48		direct	128 Jun 19 j 17:29	10°♂26'15	
max. Earth dist.	120 Aug 31 j 05:13	7°♂08'01	19.34211 AU				
				conjunction	128 Oct 08 j 23:30	14°♂52'01	0°33'37
conjunction	120 Sep 01 j 04:31	7°♂11'41	0°43'55	minimum elong	128 Oct 08 j 23:30	14°♂52'01	0°33'37
minimum elong	120 Sep 01 j 04:31	7°♂11'41	0°43'56	max. Earth dist.	128 Oct 08 j 14:26	14°♂50'36	19.58786 AU
retrograde	120 Dec 17 j 12:37	11°♂33'59		retrograde	129 Jan 23 j 23:00	19°♂09'54	
opposition	121 Mar 01 j 03:01	9°♂32'13	0°48'51	opposition	129 Apr 08 j 14:22	17°♂09'01	0°36'09
min. Earth dist.	121 Mar 01 j 23:57	9°♂29'57	17.34796 AU	min. Earth dist.	129 Apr 08 j 21:45	17°♂08'14	17.61340 AU
direct	121 May 16 j 20:15	7°♂26'03		direct	129 Jun 24 j 20:30	15°♂04'46	
max. Earth dist.	121 Sep 05 j 07:10	11°♂53'58	19.35426 AU				
				conjunction	129 Oct 13 j 19:21	19°♂29'18	0°31'14
conjunction	121 Sep 06 j 06:12	11°♂57'35	0°43'37	minimum elong	129 Oct 13 j 19:21	19°♂29'18	0°31'13

max. Earth dist.	129 Oct 13 j 11:42	19° <del>2</del> 28'06	19.63978 AU	retrograde	137 Mar 01 j 01:36	25° <del>1</del> 14'44	
retrograde	130 Jan 28 j 18:31	23° <del>2</del> 46'29		opposition	137 May 16 j 04:19	23° <del>1</del> 14'41	0°09'43
opposition	130 Apr 13 j 14:55	21° <del>2</del> 45'45	0°33'22	min. Earth dist.	137 May 15 j 21:03	23° <del>1</del> 15'25	18.08409 AU
min. Earth dist.	130 Apr 13 j 21:04	21° <del>2</del> 45'06	17.66685 AU	direct	137 Aug 01 j 09:39	21° <del>1</del> 13'13	
direct	130 Jun 29 j 20:33	19° <del>2</del> 41'52					
				conjunction	137 Nov 18 j 04:41	25° <del>1</del> 26'04	0°07'08
conjunction	130 Oct 18 j 14:36	24° <del>2</del> 05'08	0°28'40	minimum elong	137 Nov 18 j 04:40	25° <del>1</del> 26'03	0°07'09
minimum elong	130 Oct 18 j 14:36	24° <del>2</del> 05'08	0°28'40	behind sun begin	137 Nov 17 j 22:37	25° <del>1</del> 25'09	
max. Earth dist.	130 Oct 18 j 09:12	24° <del>2</del> 04'17	19.69456 AU	behind sun end	137 Nov 18 j 10:43	25° <del>1</del> 26'57	
retrograde	131 Feb 02 j 14:48	28° <del>2</del> 21'33		max. Earth dist.	137 Nov 18 j 12:47	25° <del>1</del> 27'17	20.11591 AU
opposition	131 Apr 18 j 14:54	26° <del>2</del> 20'59	0°30'24	retrograde	138 Mar 05 j 15:47	29° <del>1</del> 36'43	
min. Earth dist.	131 Apr 18 j 18:39	26° <del>2</del> 20'36	17.72263 AU	opposition	138 May 21 j 00:13	27° <del>1</del> 36'43	0°06'02
direct	131 Jul 04 j 22:06	24° <del>2</del> 17'30		min. Earth dist.	138 May 20 j 15:58	27° <del>1</del> 37'34	18.14774 AU
				direct	138 Aug 06 j 03:13	25° <del>1</del> 35'37	
conjunction	131 Oct 23 j 09:01	28° <del>2</del> 39'23	0°25'55				
minimum elong	131 Oct 23 j 09:01	28° <del>2</del> 39'23	0°25'54	conjunction	138 Nov 22 j 16:48	29° <del>1</del> 46'56	0°03'51
max. Earth dist.	131 Oct 23 j 05:13	28° <del>2</del> 38'48	19.75135 AU	minimum elong	138 Nov 22 j 16:49	29° <del>1</del> 46'56	0°03'50
	131 Nov 14 j 07:22	0° <del>1</del>		behind sun begin	138 Nov 22 j 10:20	29° <del>1</del> 45'58	
retrograde	132 Feb 07 j 09:19	2° <del>1</del> 55'02		behind sun end	138 Nov 22 j 23:17	29° <del>1</del> 47'53	
opposition	132 Apr 22 j 14:45	0° <del>1</del> 54'37	0°27'15	max. Earth dist.	138 Nov 23 j 02:18	29° <del>1</del> 48'21	20.18012 AU
min. Earth dist.	132 Apr 22 j 17:32	0° <del>1</del> 54'19	17.78034 AU		138 Nov 26 j 06:43	0° <del>2</del>	
	132 May 15 j 05:17	30° <del>1</del>		retrograde	139 Mar 10 j 07:45	3° <del>2</del> 56'47	
direct	132 Jul 08 j 20:35	28° <del>2</del> 51'29		opposition	139 May 25 j 19:09	1° <del>2</del> 56'54	0°02'21
	132 Aug 30 j 02:18	0° <del>1</del>		min. Earth dist.	139 May 25 j 07:55	1° <del>2</del> 58'03	18.21241 AU
					139 Jul 29 j 15:14	30° <del>1</del>	
conjunction	132 Oct 27 j 02:29	3° <del>1</del> 11'57	0°23'02	direct	139 Aug 10 j 22:42	29° <del>1</del> 56'10	
minimum elong	132 Oct 27 j 02:29	3° <del>1</del> 11'57	0°23'02		139 Aug 23 j 03:50	0° <del>2</del>	
max. Earth dist.	132 Oct 27 j 00:38	3° <del>1</del> 11'40	19.80982 AU				
retrograde	133 Feb 11 j 05:06	7° <del>1</del> 26'48		conjunction	139 Nov 27 j 04:20	4° <del>2</del> 06'01	0°00'29
opposition	133 Apr 27 j 13:57	5° <del>1</del> 26'30	0°23'57	minimum elong	139 Nov 27 j 04:19	4° <del>2</del> 06'01	0°00'28
min. Earth dist.	133 Apr 27 j 14:04	5° <del>1</del> 26'29	17.83931 AU	behind sun begin	139 Nov 26 j 21:48	4° <del>2</del> 05'03	
direct	133 Jul 13 j 21:01	3° <del>1</del> 23'44		behind sun end	139 Nov 27 j 10:50	4° <del>2</del> 06'58	
				max. Earth dist.	139 Nov 27 j 16:34	4° <del>2</del> 07'51	20.24514 AU
conjunction	133 Oct 31 j 19:12	7° <del>1</del> 42'43	0°20'00	desc. node	140 Jan 17 j 14:31	6° <del>2</del> 56'06	
minimum elong	133 Oct 31 j 19:12	7° <del>1</del> 42'43	0°20'01	retrograde	140 Mar 13 j 21:23	8° <del>2</del> 15'07	
max. Earth dist.	133 Oct 31 j 19:13	7° <del>1</del> 42'43	19.86930 AU	opposition	140 May 29 j 13:41	6° <del>2</del> 15'20	0°-1'-18
retrograde	134 Feb 15 j 22:03	11° <del>1</del> 56'45		min. Earth dist.	140 May 29 j 01:28	6° <del>2</del> 16'35	18.27778 AU
opposition	134 May 02 j 12:32	9° <del>1</del> 56'32	0°20'31	direct	140 Aug 14 j 14:49	4° <del>2</del> 15'00	
min. Earth dist.	134 May 02 j 11:56	9° <del>1</del> 56'35	17.89930 AU				
direct	134 Jul 18 j 17:51	7° <del>1</del> 54'05		conjunction	140 Nov 30 j 14:52	8° <del>2</del> 23'24	0°-2'-53
				minimum elong	140 Nov 30 j 14:52	8° <del>2</del> 23'24	0°02'54
conjunction	134 Nov 05 j 11:00	12° <del>1</del> 11'35	0°16'53	behind sun begin	140 Nov 30 j 08:21	8° <del>2</del> 22'26	
minimum elong	134 Nov 05 j 11:00	12° <del>1</del> 11'35	0°16'53	behind sun end	140 Nov 30 j 21:23	8° <del>2</del> 24'21	
max. Earth dist.	134 Nov 05 j 12:34	12° <del>1</del> 11'49	19.92974 AU	max. Earth dist.	140 Dec 01 j 04:15	8° <del>2</del> 25'24	20.31073 AU
	134 Dec 25 j 03:07	15° <del>1</del>		retrograde	141 Mar 18 j 12:17	12° <del>2</del> 31'47	
retrograde	135 Feb 20 j 16:53	16° <del>1</del> 24'45		opposition	141 Jun 03 j 07:21	10° <del>2</del> 32'08	0°-4'-56
	135 Apr 22 j 22:41	15° <del>1</del>		min. Earth dist.	141 Jun 02 j 16:26	10° <del>2</del> 33'39	18.34336 AU
opposition	135 May 07 j 10:25	14° <del>1</del> 24'36	0°16'59	direct	141 Aug 19 j 08:10	8° <del>2</del> 32'12	
min. Earth dist.	135 May 07 j 07:01	14° <del>1</del> 24'57	17.95999 AU				
direct	135 Jul 23 j 16:54	12° <del>1</del> 22'29		conjunction	141 Dec 05 j 01:02	12° <del>2</del> 39'13	0°-6'-8
	135 Oct 13 j 16:15	15° <del>1</del>		minimum elong	141 Dec 05 j 01:02	12° <del>2</del> 39'13	0°06'09
				behind sun begin	141 Dec 04 j 18:49	12° <del>2</del> 38'18	
conjunction	135 Nov 10 j 01:48	16° <del>1</del> 38'26	0°13'41	behind sun end	141 Dec 05 j 07:15	12° <del>2</del> 40'08	
minimum elong	135 Nov 10 j 01:48	16° <del>1</del> 38'26	0°13'41	max. Earth dist.	141 Dec 05 j 17:00	12° <del>2</del> 41'37	20.37605 AU
behind sun begin	135 Nov 09 j 22:08	16° <del>1</del> 37'53		retrograde	142 Mar 23 j 00:58	16° <del>2</del> 46'54	
behind sun end	135 Nov 10 j 05:27	16° <del>1</del> 38'59		min. Earth dist.	142 Jun 07 j 08:42	14° <del>2</del> 48'58	18.40835 AU
max. Earth dist.	135 Nov 10 j 05:40	16° <del>1</del> 39'01	19.99079 AU	opposition	142 Jun 08 j 00:18	14° <del>2</del> 47'23	0°-8'-31
retrograde	136 Feb 25 j 08:07	20° <del>1</del> 50'46		direct	142 Aug 23 j 23:13	12° <del>2</del> 47'53	
opposition	136 May 11 j 07:50	18° <del>1</del> 50'40	0°13'22				
min. Earth dist.	136 May 11 j 03:36	18° <del>1</del> 51'06	18.02152 AU	conjunction	142 Dec 09 j 10:26	16° <del>2</del> 53'31	0°-9'-19
direct	136 Jul 27 j 12:22	16° <del>1</del> 48'52		minimum elong	142 Dec 09 j 10:26	16° <del>2</del> 53'31	0°09'20
				behind sun begin	142 Dec 09 j 04:55	16° <del>2</del> 52'43	
conjunction	136 Nov 13 j 15:40	21° <del>1</del> 03'15	0°10'26	behind sun end	142 Dec 09 j 15:58	16° <del>2</del> 54'20	
minimum elong	136 Nov 13 j 15:40	21° <del>1</del> 03'15	0°10'25	max. Earth dist.	142 Dec 10 j 03:02	16° <del>2</del> 56'00	20.44056 AU
behind sun begin	136 Nov 13 j 10:28	21° <del>1</del> 02'29		retrograde	143 Mar 27 j 14:27	21° <del>2</del> 00'33	
behind sun end	136 Nov 13 j 20:52	21° <del>1</del> 04'02		opposition	143 Jun 12 j 16:39	19° <del>2</del> 01'10	0°-12'-2
max. Earth dist.	136 Nov 13 j 21:06	21° <del>1</del> 04'04	20.05287 AU	min. Earth dist.	143 Jun 11 j 22:51	19° <del>2</del> 02'58	18.47221 AU

direct	143 Aug 28 j 14:20	17° $\mathring{A}$ 02'03		max. Earth dist.	151 Jan 11 j 20:40	20° $\mathring{C}$ 00'50	20.85659 AU
				retrograde	151 Apr 30 j 03:05	24° $\mathring{C}$ 00'04	
conjunction	143 Dec 13 j 19:18	21° $\mathring{A}$ 06'23	0°-12'-27	min. Earth dist.	151 Jul 16 j 03:43	22° $\mathring{C}$ 03'18	18.87588 AU
minimum elong	143 Dec 13 j 19:18	21° $\mathring{A}$ 06'23	0°12'29	opposition	151 Jul 17 j 03:48	22° $\mathring{C}$ 00'54	0°-35'-48
behind sun begin	143 Dec 13 j 14:58	21° $\mathring{A}$ 05'45		direct	151 Oct 01 j 08:30	20° $\mathring{C}$ 03'43	
behind sun end	143 Dec 13 j 23:39	21° $\mathring{A}$ 07'01					
max. Earth dist.	143 Dec 14 j 14:18	21° $\mathring{A}$ 09'13	20.50343 AU	conjunction	152 Jan 15 j 02:06	23° $\mathring{C}$ 59'22	0°-33'-24
retrograde	144 Mar 31 j 02:21	25° $\mathring{A}$ 12'47		minimum elong	152 Jan 15 j 02:06	23° $\mathring{C}$ 59'22	0°33'25
opposition	144 Jun 16 j 08:30	23° $\mathring{A}$ 13'32	0°-15'-28	max. Earth dist.	152 Jan 16 j 04:00	24° $\mathring{C}$ 03'07	20.89376 AU
min. Earth dist.	144 Jun 15 j 14:07	23° $\mathring{A}$ 15'23	18.53408 AU	retrograde	152 May 03 j 11:24	28° $\mathring{C}$ 01'44	
direct	144 Sep 01 j 04:16	21° $\mathring{A}$ 14'47		opposition	152 Jul 20 j 14:18	26° $\mathring{C}$ 02'33	0°-38'-2
				min. Earth dist.	152 Jul 19 j 13:39	26° $\mathring{C}$ 05'01	18.91167 AU
conjunction	144 Dec 17 j 03:41	25° $\mathring{A}$ 17'51	0°-15'-30	direct	152 Oct 04 j 17:24	24° $\mathring{C}$ 05'32	
minimum elong	144 Dec 17 j 03:41	25° $\mathring{A}$ 17'51	0°15'31				
behind sun begin	144 Dec 17 j 01:38	25° $\mathring{A}$ 17'33		conjunction	153 Jan 18 j 07:20	28° $\mathring{C}$ 00'25	0°-35'-20
behind sun end	144 Dec 17 j 05:43	25° $\mathring{A}$ 18'08		minimum elong	153 Jan 18 j 07:20	28° $\mathring{C}$ 00'25	0°35'21
max. Earth dist.	144 Dec 17 j 22:52	25° $\mathring{A}$ 20'41	20.56412 AU	max. Earth dist.	153 Jan 19 j 08:46	28° $\mathring{C}$ 04'06	20.92816 AU
retrograde	145 Apr 04 j 14:31	29° $\mathring{A}$ 23'39			153 Feb 23 j 05:59	0° $\approx$	
opposition	145 Jun 20 j 23:29	27° $\mathring{A}$ 24'29	0°-18'-48	retrograde	153 May 07 j 20:46	2° $\approx$ 02'31	
min. Earth dist.	145 Jun 20 j 03:27	27° $\mathring{A}$ 26'29	18.59350 AU	min. Earth dist.	153 Jul 23 j 23:04	0° $\approx$ 05'50	18.94472 AU
direct	145 Sep 05 j 17:24	25° $\mathring{A}$ 26'04		opposition	153 Jul 25 j 00:08	0° $\approx$ 03'19	0°-40'-3
					153 Jul 26 j 09:20	30° $\mathring{R}$ $\mathring{C}$	
conjunction	145 Dec 21 j 11:43	29° $\mathring{A}$ 27'55	0°-18'-27	direct	153 Oct 08 j 23:44	28° $\mathring{C}$ 06'27	
minimum elong	145 Dec 21 j 11:43	29° $\mathring{A}$ 27'55	0°18'29		153 Dec 17 j 01:37	0° $\approx$	
max. Earth dist.	145 Dec 22 j 08:51	29° $\mathring{A}$ 31'02	20.62185 AU				
	145 Dec 30 j 12:43	0° $\mathring{C}$		conjunction	154 Jan 22 j 12:34	2° $\approx$ 00'43	0°-37'-5
retrograde	146 Apr 09 j 01:15	3° $\mathring{C}$ 33'07		minimum elong	154 Jan 22 j 12:34	2° $\approx$ 00'43	0°37'06
opposition	146 Jun 25 j 13:55	1° $\mathring{C}$ 34'02	0°-22'-1	max. Earth dist.	154 Jan 23 j 15:33	2° $\approx$ 04'37	20.95960 AU
min. Earth dist.	146 Jun 24 j 17:32	1° $\mathring{C}$ 36'05	18.64955 AU	retrograde	154 May 12 j 04:57	6° $\approx$ 02'35	
	146 Aug 09 j 16:01	30° $\mathring{R}$ $\mathring{A}$		min. Earth dist.	154 Jul 28 j 08:06	4° $\approx$ 05'57	18.97454 AU
direct	146 Sep 10 j 05:49	29° $\mathring{A}$ 35'55		opposition	154 Jul 29 j 09:33	4° $\approx$ 03'24	0°-41'-53
	146 Oct 10 j 22:41	0° $\mathring{C}$		direct	154 Oct 13 j 07:41	2° $\approx$ 06'43	
conjunction	146 Dec 25 j 19:06	3° $\mathring{C}$ 36'35	0°-21'-18	conjunction	155 Jan 26 j 17:26	6° $\approx$ 00'25	0°-38'-39
minimum elong	146 Dec 25 j 19:06	3° $\mathring{C}$ 36'35	0°21'20	minimum elong	155 Jan 26 j 17:26	6° $\approx$ 00'25	0°38'40
max. Earth dist.	146 Dec 26 j 16:02	3° $\mathring{C}$ 39'40	20.67610 AU	max. Earth dist.	155 Jan 27 j 19:40	6° $\approx$ 04'12	20.98781 AU
retrograde	147 Apr 13 j 12:39	7° $\mathring{C}$ 41'15		retrograde	155 May 16 j 14:14	10° $\approx$ 02'08	
min. Earth dist.	147 Jun 29 j 06:03	5° $\mathring{C}$ 44'21	18.70201 AU	opposition	155 Aug 02 j 18:39	8° $\approx$ 02'59	0°-43'-30
opposition	147 Jun 30 j 03:40	5° $\mathring{C}$ 42'11	0°-25'-6	min. Earth dist.	155 Aug 01 j 17:09	8° $\approx$ 05'32	19.00109 AU
direct	147 Sep 14 j 17:30	3° $\mathring{C}$ 44'19		direct	155 Oct 17 j 13:13	6° $\approx$ 06'27	
conjunction	147 Dec 30 j 02:14	7° $\mathring{C}$ 43'51	0°-24'-1	conjunction	156 Jan 30 j 22:35	9° $\approx$ 59'42	0°-40'-2
minimum elong	147 Dec 30 j 02:14	7° $\mathring{C}$ 43'51	0°24'02	minimum elong	156 Jan 30 j 22:35	9° $\approx$ 59'42	0°40'03
max. Earth dist.	147 Dec 31 j 00:58	7° $\mathring{C}$ 47'11	20.72657 AU	max. Earth dist.	156 Feb 01 j 02:06	10° $\approx$ 03'39	21.01247 AU
retrograde	148 Apr 16 j 22:04	11° $\mathring{C}$ 47'58		retrograde	156 May 19 j 22:25	14° $\approx$ 01'19	
opposition	148 Jul 03 j 16:47	9° $\mathring{C}$ 48'55	0°-28'-2	min. Earth dist.	156 Aug 05 j 01:40	12° $\approx$ 04'46	19.02378 AU
min. Earth dist.	148 Jul 02 j 18:49	9° $\mathring{C}$ 51'07	18.75058 AU	opposition	156 Aug 06 j 03:17	12° $\approx$ 02'12	0°-44'-55
direct	148 Sep 18 j 04:24	7° $\mathring{C}$ 51'16		direct	156 Oct 20 j 19:57	10° $\approx$ 05'50	
conjunction	149 Jan 02 j 08:42	11° $\mathring{C}$ 49'42	0°-26'-36	conjunction	157 Feb 03 j 03:41	13° $\approx$ 58'43	0°-41'-13
minimum elong	149 Jan 02 j 08:42	11° $\mathring{C}$ 49'42	0°26'38	minimum elong	157 Feb 03 j 03:41	13° $\approx$ 58'43	0°41'14
max. Earth dist.	149 Jan 03 j 07:09	11° $\mathring{C}$ 52'59	20.77334 AU	max. Earth dist.	157 Feb 04 j 06:00	14° $\approx$ 02'29	21.03314 AU
retrograde	149 Apr 21 j 08:49	15° $\mathring{C}$ 53'19			157 Feb 21 j 02:45	15° $\approx$	
min. Earth dist.	149 Jul 07 j 06:18	13° $\mathring{C}$ 56'31	18.79561 AU	retrograde	157 May 24 j 07:52	18° $\approx$ 00'19	
opposition	149 Jul 08 j 05:10	13° $\mathring{C}$ 54'14	0°-30'-48	min. Earth dist.	157 Aug 09 j 10:36	16° $\approx$ 03'44	19.04229 AU
direct	149 Sep 22 j 14:35	11° $\mathring{C}$ 56'44		opposition	157 Aug 10 j 11:40	16° $\approx$ 01'14	0°-46'-7
					157 Sep 06 j 07:21	15° $\mathring{R}$ $\approx$	
conjunction	150 Jan 06 j 14:57	15° $\mathring{C}$ 54'10	0°-29'-2	direct	157 Oct 25 j 01:13	14° $\approx$ 04'59	
minimum elong	150 Jan 06 j 14:57	15° $\mathring{C}$ 54'10	0°29'03		157 Dec 10 j 23:58	15° $\approx$	
max. Earth dist.	150 Jan 07 j 15:14	15° $\mathring{C}$ 57'43	20.81652 AU				
retrograde	150 Apr 25 j 17:13	19° $\mathring{C}$ 57'18		conjunction	158 Feb 07 j 09:05	17° $\approx$ 57'35	0°-42'-13
opposition	150 Jul 12 j 16:42	17° $\mathring{C}$ 58'11	0°-33'-24	minimum elong	158 Feb 07 j 09:05	17° $\approx$ 57'35	0°42'14
min. Earth dist.	150 Jul 11 j 17:25	18° $\mathring{C}$ 00'30	18.83717 AU	max. Earth dist.	158 Feb 08 j 12:10	18° $\approx$ 01'28	21.04920 AU
direct	150 Sep 27 j 00:17	16° $\mathring{C}$ 00'51		retrograde	158 May 28 j 16:06	21° $\approx$ 59'12	
				opposition	158 Aug 14 j 19:35	20° $\approx$ 00'08	0°-47'-6
conjunction	151 Jan 10 j 20:39	19° $\mathring{C}$ 57'20	0°-31'-18	min. Earth dist.	158 Aug 13 j 18:46	20° $\approx$ 02'37	19.05585 AU
minimum elong	151 Jan 10 j 20:39	19° $\mathring{C}$ 57'20	0°31'20	direct	158 Oct 29 j 06:57	18° $\approx$ 04'00	

conjunction	159 Feb 11 j 14:32	21° $\approx$ 56'25	0°-43'00	max. Earth dist.	167 Mar 16 j 13:42	23° $\times$ 52'21	20.96739 AU
minimum elong	159 Feb 11 j 14:32	21° $\approx$ 56'25	0°43'00	retrograde	167 Jul 04 j 22:49	27° $\times$ 53'22	
max. Earth dist.	159 Feb 12 j 15:57	22° $\approx$ 00'03	21.06025 AU	opposition	167 Sep 20 j 11:11	25° $\times$ 53'20	0°-45'-28
retrograde	159 Jun 02 j 01:25	25° $\approx$ 58'07		min. Earth dist.	167 Sep 19 j 18:56	25° $\times$ 54'59	18.95364 AU
min. Earth dist.	159 Aug 18 j 03:41	24° $\approx$ 01'24	19.06427 AU	direct	167 Dec 04 j 06:29	23° $\times$ 56'23	
opposition	159 Aug 19 j 03:31	23° $\approx$ 59'01	0°-47'-51				
direct	159 Nov 02 j 12:11	22° $\approx$ 02'55		conjunction	168 Mar 19 j 03:46	27° $\times$ 50'38	0°-40'-35
				minimum elong	168 Mar 19 j 03:46	27° $\times$ 50'38	0°40'35
conjunction	160 Feb 15 j 20:18	25° $\approx$ 55'14	0°-43'-35	max. Earth dist.	168 Mar 19 j 22:05	27° $\times$ 53'15	20.93848 AU
minimum elong	160 Feb 15 j 20:18	25° $\approx$ 55'14	0°43'36		168 Apr 27 j 20:31	0° $\Psi$	
max. Earth dist.	160 Feb 16 j 22:08	25° $\approx$ 58'55	21.06582 AU	retrograde	168 Jul 08 j 08:29	1° $\Psi$ 54'44	
retrograde	160 Jun 05 j 10:05	29° $\approx$ 57'01			168 Sep 21 j 13:18	30° $\times$	
min. Earth dist.	160 Aug 21 j 11:43	28° $\approx$ 00'13	19.06693 AU	opposition	168 Sep 23 j 17:55	29° $\times$ 54'37	0°-44'-9
opposition	160 Aug 22 j 11:07	27° $\approx$ 57'52	0°-48'-23	min. Earth dist.	168 Sep 23 j 02:08	29° $\times$ 56'14	18.92301 AU
direct	160 Nov 05 j 17:52	26° $\approx$ 01'47		direct	168 Dec 07 j 13:06	27° $\times$ 57'31	
					169 Feb 17 j 11:48	0° $\Psi$	
conjunction	161 Feb 19 j 02:13	29° $\approx$ 54'02	0°-43'-57				
minimum elong	161 Feb 19 j 02:13	29° $\approx$ 54'02	0°43'57	conjunction	169 Mar 23 j 12:42	1° $\Psi$ 52'26	0°-39'-16
max. Earth dist.	161 Feb 20 j 02:02	29° $\approx$ 57'26	21.06572 AU	minimum elong	169 Mar 23 j 12:42	1° $\Psi$ 52'26	0°39'17
	161 Feb 20 j 19:57	0° $\times$		max. Earth dist.	169 Mar 24 j 04:32	1° $\Psi$ 54'42	20.90629 AU
retrograde	161 Jun 09 j 18:42	3° $\times$ 55'57		retrograde	169 Jul 12 j 18:16	5° $\Psi$ 57'04	
opposition	161 Aug 26 j 18:25	1° $\times$ 56'43	0°-48'-40	min. Earth dist.	169 Sep 27 j 11:03	3° $\Psi$ 58'17	18.88916 AU
min. Earth dist.	161 Aug 25 j 20:24	1° $\times$ 58'56	19.06405 AU	opposition	169 Sep 28 j 00:50	3° $\Psi$ 56'52	0°-42'-35
direct	161 Nov 09 j 22:54	0° $\times$ 00'34		direct	169 Dec 11 j 17:47	1° $\Psi$ 59'36	
conjunction	162 Feb 23 j 08:27	3° $\times$ 52'51	0°-44'-6	conjunction	170 Mar 27 j 22:25	5° $\Psi$ 55'17	0°-37'-46
minimum elong	162 Feb 23 j 08:27	3° $\times$ 52'51	0°44'07	minimum elong	170 Mar 27 j 22:25	5° $\Psi$ 55'17	0°37'47
max. Earth dist.	162 Feb 24 j 08:30	3° $\times$ 56'17	21.06013 AU	max. Earth dist.	170 Mar 28 j 13:55	5° $\Psi$ 57'30	20.87077 AU
retrograde	162 Jun 14 j 03:42	7° $\times$ 54'55		retrograde	170 Jul 17 j 04:44	10° $\Psi$ 00'28	
min. Earth dist.	162 Aug 30 j 03:56	5° $\times$ 57'44	19.05580 AU	opposition	170 Oct 02 j 07:56	8° $\Psi$ 00'13	0°-40'-49
opposition	162 Aug 31 j 01:30	5° $\times$ 55'34	0°-48'-43	min. Earth dist.	170 Oct 01 j 18:51	8° $\Psi$ 01'34	18.85176 AU
direct	162 Nov 14 j 04:54	3° $\times$ 59'20		direct	170 Dec 16 j 00:29	6° $\Psi$ 02'48	
conjunction	163 Feb 27 j 14:34	7° $\times$ 51'42	0°-44'-2	conjunction	171 Apr 01 j 08:34	9° $\Psi$ 59'18	0°-36'-3
minimum elong	163 Feb 27 j 14:34	7° $\times$ 51'42	0°44'04	minimum elong	171 Apr 01 j 08:34	9° $\Psi$ 59'18	0°36'04
max. Earth dist.	163 Feb 28 j 12:42	7° $\times$ 54'52	21.04954 AU	max. Earth dist.	171 Apr 01 j 21:20	10° $\Psi$ 01'07	20.83159 AU
retrograde	163 Jun 18 j 11:34	11° $\times$ 54'00		retrograde	171 Jul 21 j 15:26	14° $\Psi$ 05'08	
opposition	163 Sep 04 j 08:32	9° $\times$ 54'29	0°-48'-32	opposition	171 Oct 06 j 15:29	12° $\Psi$ 04'48	0°-38'-50
min. Earth dist.	163 Sep 03 j 12:22	9° $\times$ 56'31	19.04297 AU	min. Earth dist.	171 Oct 06 j 04:50	12° $\Psi$ 05'53	18.81062 AU
direct	163 Nov 18 j 09:26	7° $\times$ 58'08		direct	171 Dec 20 j 06:15	10° $\Psi$ 07'09	
conjunction	164 Mar 02 j 21:18	11° $\times$ 50'41	0°-43'-46	conjunction	172 Apr 04 j 19:53	14° $\Psi$ 04'36	0°-34'-10
minimum elong	164 Mar 02 j 21:18	11° $\times$ 50'41	0°43'47	minimum elong	172 Apr 04 j 19:53	14° $\Psi$ 04'36	0°34'11
max. Earth dist.	164 Mar 03 j 19:45	11° $\times$ 53'53	21.03456 AU	max. Earth dist.	172 Apr 05 j 07:49	14° $\Psi$ 06'19	20.78840 AU
retrograde	164 Jun 21 j 20:57	15° $\times$ 53'13		retrograde	172 Jul 25 j 03:06	18° $\Psi$ 11'04	
opposition	164 Sep 07 j 15:09	13° $\times$ 53'34	0°-48'-7	opposition	172 Oct 09 j 23:03	16° $\Psi$ 10'39	0°-36'-38
min. Earth dist.	164 Sep 06 j 19:24	13° $\times$ 55'34	19.02592 AU	min. Earth dist.	172 Oct 09 j 13:27	16° $\Psi$ 11'38	18.76521 AU
direct	164 Nov 21 j 15:41	11° $\times$ 57'05		direct	172 Dec 23 j 13:51	14° $\Psi$ 12'46	
conjunction	165 Mar 07 j 04:13	15° $\times$ 49'55	0°-43'-17	conjunction	173 Apr 09 j 07:47	18° $\Psi$ 11'12	0°-32'-5
minimum elong	165 Mar 07 j 04:13	15° $\times$ 49'55	0°43'18	minimum elong	173 Apr 09 j 07:47	18° $\Psi$ 11'12	0°32'05
max. Earth dist.	165 Mar 08 j 00:35	15° $\times$ 52'49	21.01566 AU	max. Earth dist.	173 Apr 09 j 16:29	18° $\Psi$ 12'27	20.74086 AU
retrograde	165 Jun 26 j 04:45	19° $\times$ 52'46		retrograde	173 Jul 29 j 14:19	22° $\Psi$ 18'21	
opposition	165 Sep 11 j 21:53	17° $\times$ 52'58	0°-47'-28	opposition	173 Oct 14 j 07:14	20° $\Psi$ 17'48	0°-34'-14
min. Earth dist.	165 Sep 11 j 03:39	17° $\times$ 54'49	19.00522 AU	min. Earth dist.	173 Oct 14 j 00:22	20° $\Psi$ 18'31	18.71549 AU
direct	165 Nov 25 j 19:48	15° $\times$ 56'19		direct	173 Dec 27 j 20:42	18° $\Psi$ 19'38	
conjunction	166 Mar 11 j 11:37	19° $\times$ 49'32	0°-42'-35	conjunction	174 Apr 13 j 20:27	22° $\Psi$ 19'07	0°-29'-49
minimum elong	166 Mar 11 j 11:37	19° $\times$ 49'32	0°42'35	minimum elong	174 Apr 13 j 20:27	22° $\Psi$ 19'07	0°29'50
max. Earth dist.	166 Mar 12 j 08:09	19° $\times$ 52'28	20.99316 AU	max. Earth dist.	174 Apr 14 j 04:04	22° $\Psi$ 20'13	20.68904 AU
retrograde	166 Jun 30 j 14:04	23° $\times$ 52'44		retrograde	174 Aug 03 j 03:01	26° $\Psi$ 26'57	
min. Earth dist.	166 Sep 15 j 10:31	21° $\times$ 54'39	18.98098 AU	opposition	174 Oct 18 j 15:35	24° $\Psi$ 26'15	0°-31'-39
opposition	166 Sep 16 j 04:26	21° $\times$ 52'50	0°-46'-35	min. Earth dist.	174 Oct 18 j 09:43	24° $\Psi$ 26'52	18.66154 AU
direct	166 Nov 30 j 02:21	19° $\times$ 56'03		direct	175 Jan 01 j 05:48	22° $\Psi$ 27'46	
conjunction	167 Mar 15 j 19:21	23° $\times$ 49'44	0°-41'-41	conjunction	175 Apr 18 j 09:46	26° $\Psi$ 28'21	0°-27'-23
minimum elong	167 Mar 15 j 19:21	23° $\times$ 49'44	0°41'42	minimum elong	175 Apr 18 j 09:46	26° $\Psi$ 28'21	0°27'24

max. Earth dist.	175 Apr 18 j 14:12	26° $\Upsilon$ 28'59	20.63330 AU	behind sun end	182 May 19 j 11:03	26° $\mathcal{B}$ 15'09	
	175 Jun 29 j 22:10	0° $\mathcal{B}$		max. Earth dist.	182 May 18 j 20:27	26° $\mathcal{B}$ 13'02	20.19115 AU
retrograde	175 Aug 07 j 14:35	0° $\mathcal{B}$ 36'53			182 Aug 04 j 19:10	0° $\Pi$	
	175 Sep 15 j 20:20	30° $\mathcal{R}\Upsilon$		retrograde	182 Sep 06 j 22:56	0° $\Pi$ 28'14	
opposition	175 Oct 23 j 00:20	28° $\Upsilon$ 36'01	0°-28'-52		182 Oct 10 j 07:31	30° $\mathcal{R}\mathcal{B}$	
min. Earth dist.	175 Oct 22 j 21:15	28° $\Upsilon$ 36'21	18.60410 AU	opposition	182 Nov 21 j 01:46	28° $\mathcal{B}$ 26'23	0°-5'-30
direct	176 Jan 05 j 13:33	26° $\Upsilon$ 37'10		min. Earth dist.	182 Nov 21 j 08:50	28° $\mathcal{B}$ 25'38	18.15895 AU
	176 Apr 10 j 18:41	0° $\mathcal{B}$		direct	183 Feb 03 j 18:54	26° $\mathcal{B}$ 24'51	
					183 May 13 j 18:57	0° $\Pi$	
conjunction	176 Apr 22 j 00:00	0° $\mathcal{B}$ 38'55	0°-24'-47				
minimum elong	176 Apr 22 j 00:00	0° $\mathcal{B}$ 38'55	0°24'48	conjunction	183 May 24 j 00:32	0° $\Pi$ 36'20	0°-3'-22
max. Earth dist.	176 Apr 22 j 03:18	0° $\mathcal{B}$ 39'23	20.57437 AU	minimum elong	183 May 24 j 00:31	0° $\Pi$ 36'20	0°03'23
retrograde	176 Aug 11 j 04:23	4° $\mathcal{B}$ 48'10		behind sun begin	183 May 23 j 17:47	0° $\Pi$ 35'21	
opposition	176 Oct 26 j 09:20	2° $\mathcal{B}$ 47'08	0°-25'-55	behind sun end	183 May 24 j 07:15	0° $\Pi$ 37'18	
min. Earth dist.	176 Oct 26 j 07:09	2° $\mathcal{B}$ 47'21	18.54371 AU	max. Earth dist.	183 May 23 j 14:05	0° $\Pi$ 34'48	20.12725 AU
direct	177 Jan 08 j 23:53	0° $\mathcal{B}$ 47'53		retrograde	183 Sep 11 j 15:05	4° $\Pi$ 51'09	
				opposition	183 Nov 25 j 14:39	2° $\Pi$ 49'16	0°-1'-48
conjunction	177 Apr 26 j 14:48	4° $\mathcal{B}$ 50'52	0°-22'-3	min. Earth dist.	183 Nov 26 j 00:19	2° $\Pi$ 48'14	18.09538 AU
minimum elong	177 Apr 26 j 14:48	4° $\mathcal{B}$ 50'52	0°22'04	direct	184 Feb 08 j 06:54	0° $\Pi$ 47'23	
max. Earth dist.	177 Apr 26 j 15:06	4° $\mathcal{B}$ 50'55	20.51281 AU	asc. node	184 May 21 j 22:21	4° $\Pi$ 39'09	
retrograde	177 Aug 15 j 16:40	9° $\mathcal{B}$ 00'52					
opposition	177 Oct 30 j 18:48	6° $\mathcal{B}$ 59'39	0°-22'-49	conjunction	184 May 27 j 21:16	5° $\Pi$ 00'27	0°00'04
min. Earth dist.	177 Oct 30 j 19:17	6° $\mathcal{B}$ 59'36	18.48121 AU	minimum elong	184 May 27 j 21:17	5° $\Pi$ 00'27	0°00'03
direct	178 Jan 13 j 08:40	5° $\mathcal{B}$ 00'00		behind sun begin	184 May 27 j 15:16	4° $\Pi$ 59'34	
				behind sun end	184 May 28 j 03:19	5° $\Pi$ 01'18	
conjunction	178 May 01 j 06:27	9° $\mathcal{B}$ 04'16	0°-19'-11	max. Earth dist.	184 May 27 j 09:05	4° $\Pi$ 58'38	20.06397 AU
minimum elong	178 May 01 j 06:27	9° $\mathcal{B}$ 04'16	0°19'11	retrograde	184 Sep 15 j 10:33	9° $\Pi$ 16'06	
max. Earth dist.	178 May 01 j 05:41	9° $\mathcal{B}$ 04'10	20.44958 AU	opposition	184 Nov 29 j 04:12	7° $\Pi$ 14'09	0°01'57
retrograde	178 Aug 20 j 07:34	13° $\mathcal{B}$ 15'01		min. Earth dist.	184 Nov 29 j 14:36	7° $\Pi$ 13'02	18.03226 AU
opposition	178 Nov 04 j 04:38	11° $\mathcal{B}$ 13'38	0°-19'-35	direct	185 Feb 11 j 23:02	5° $\Pi$ 11'56	
min. Earth dist.	178 Nov 04 j 05:43	11° $\mathcal{B}$ 13'31	18.41731 AU				
direct	179 Jan 17 j 19:46	9° $\mathcal{B}$ 13'36		conjunction	185 Jun 01 j 18:50	9° $\Pi$ 26'33	0°03'31
				minimum elong	185 Jun 01 j 18:50	9° $\Pi$ 26'33	0°03'32
conjunction	179 May 05 j 22:40	13° $\mathcal{B}$ 19'12	0°-16'-11	behind sun begin	185 Jun 01 j 12:06	9° $\Pi$ 25'34	
minimum elong	179 May 05 j 22:40	13° $\mathcal{B}$ 19'12	0°16'12	behind sun end	185 Jun 02 j 01:34	9° $\Pi$ 27'32	
max. Earth dist.	179 May 05 j 19:15	13° $\mathcal{B}$ 18'43	20.38520 AU	max. Earth dist.	185 Jun 01 j 04:38	9° $\Pi$ 24'26	20.00085 AU
	179 Jun 04 j 09:57	15° $\mathcal{B}$		retrograde	185 Sep 20 j 03:41	13° $\Pi$ 43'00	
retrograde	179 Aug 24 j 21:27	17° $\mathcal{B}$ 30'45		opposition	185 Dec 03 j 18:40	11° $\Pi$ 41'01	0°05'43
opposition	179 Nov 08 j 15:08	15° $\mathcal{B}$ 29'12	0°-16'-12	min. Earth dist.	185 Dec 04 j 07:40	11° $\Pi$ 39'37	17.96934 AU
min. Earth dist.	179 Nov 08 j 18:46	15° $\mathcal{B}$ 28'49	18.35266 AU	direct	186 Feb 16 j 13:09	9° $\Pi$ 38'27	
	179 Nov 20 j 05:32	15° $\mathcal{R}\mathcal{B}$					
direct	180 Jan 22 j 05:42	13° $\mathcal{B}$ 28'46		conjunction	186 Jun 06 j 17:14	13° $\Pi$ 54'37	0°06'54
	180 Mar 23 j 01:00	15° $\mathcal{B}$		minimum elong	186 Jun 06 j 17:14	13° $\Pi$ 54'37	0°06'55
				behind sun begin	186 Jun 06 j 10:58	13° $\Pi$ 53'41	
conjunction	180 May 09 j 15:58	17° $\mathcal{B}$ 35'47	0°-13'-6	behind sun end	186 Jun 06 j 23:31	13° $\Pi$ 55'32	
minimum elong	180 May 09 j 15:58	17° $\mathcal{B}$ 35'47	0°13'06	max. Earth dist.	186 Jun 06 j 00:50	13° $\Pi$ 52'09	19.93810 AU
behind sun begin	180 May 09 j 12:05	17° $\mathcal{B}$ 35'13		retrograde	186 Sep 24 j 23:52	18° $\Pi$ 11'50	
behind sun end	180 May 09 j 19:51	17° $\mathcal{B}$ 36'20		opposition	186 Dec 08 j 09:42	16° $\Pi$ 09'46	0°09'30
max. Earth dist.	180 May 09 j 11:22	17° $\mathcal{B}$ 35'07	20.32040 AU	min. Earth dist.	186 Dec 08 j 23:30	16° $\Pi$ 08'17	17.90678 AU
retrograde	180 Aug 28 j 13:40	21° $\mathcal{B}$ 48'07		direct	187 Feb 21 j 07:35	14° $\Pi$ 06'50	
opposition	180 Nov 12 j 01:55	19° $\mathcal{B}$ 46'27	0°-12'-44				
min. Earth dist.	180 Nov 12 j 06:05	19° $\mathcal{B}$ 46'00	18.28775 AU	conjunction	187 Jun 11 j 16:28	18° $\Pi$ 24'30	0°10'16
direct	181 Jan 25 j 18:01	17° $\mathcal{B}$ 45'37		minimum elong	187 Jun 11 j 16:28	18° $\Pi$ 24'30	0°10'17
				behind sun begin	187 Jun 11 j 11:09	18° $\Pi$ 23'43	
conjunction	181 May 14 j 09:59	21° $\mathcal{B}$ 54'05	0°-9'-56	behind sun end	187 Jun 11 j 21:47	18° $\Pi$ 25'17	
minimum elong	181 May 14 j 09:59	21° $\mathcal{B}$ 54'05	0°09'56	max. Earth dist.	187 Jun 10 j 22:25	18° $\Pi$ 21'47	19.87561 AU
behind sun begin	181 May 14 j 04:33	21° $\mathcal{B}$ 53'18		retrograde	187 Sep 29 j 17:47	22° $\Pi$ 42'26	
behind sun end	181 May 14 j 15:25	21° $\mathcal{B}$ 54'52		opposition	187 Dec 13 j 01:39	20° $\Pi$ 40'18	0°13'14
max. Earth dist.	181 May 14 j 02:56	21° $\mathcal{B}$ 53'04	20.25551 AU	min. Earth dist.	187 Dec 13 j 17:53	20° $\Pi$ 38'32	17.84461 AU
retrograde	181 Sep 02 j 04:53	26° $\mathcal{B}$ 07'15		direct	188 Feb 26 j 00:01	18° $\Pi$ 36'57	
opposition	181 Nov 16 j 13:37	24° $\mathcal{B}$ 05'28	0°-9'-9				
min. Earth dist.	181 Nov 16 j 20:12	24° $\mathcal{B}$ 04'46	18.22309 AU	conjunction	188 Jun 15 j 16:22	22° $\Pi$ 56'06	0°13'36
direct	182 Jan 30 j 04:47	22° $\mathcal{B}$ 04'17		minimum elong	188 Jun 15 j 16:22	22° $\Pi$ 56'06	0°13'37
				behind sun begin	188 Jun 15 j 12:50	22° $\Pi$ 55'35	
conjunction	182 May 19 j 04:45	26° $\mathcal{B}$ 14'14	0°-6'-41	behind sun end	188 Jun 15 j 19:53	22° $\Pi$ 56'38	
minimum elong	182 May 19 j 04:44	26° $\mathcal{B}$ 14'14	0°06'42	max. Earth dist.	188 Jun 14 j 19:53	22° $\Pi$ 53'01	19.81390 AU
behind sun begin	182 May 18 j 22:26	26° $\mathcal{B}$ 13'20		retrograde	188 Oct 03 j 14:40	27° $\Pi$ 14'43	



opposition	188 Dec 16 j 18:07	25°II12'29	0°16'55	retrograde	196 Nov 09 j 21:17	4°Ω22'54	
min. Earth dist.	188 Dec 17 j 11:07	25°II10'38	17.78349 AU	opposition	197 Jan 22 j 07:05	2°Ω20'26	0°41'10
direct	189 Mar 01 j 20:31	23°II08'44		min. Earth dist.	197 Jan 23 j 06:10	2°Ω17'55	17.41208 AU
				direct	197 Apr 08 j 04:19	0°Ω14'21	
conjunction	189 Jun 20 j 16:58	27°II29'20	0°16'52	max. Earth dist.	197 Jul 28 j 09:44	4°Ω40'02	19.39878 AU
minimum elong	189 Jun 20 j 16:58	27°II29'20	0°16'52				
max. Earth dist.	189 Jun 19 j 19:34	27°II26'05	19.75342 AU	conjunction	197 Jul 29 j 12:18	4°Ω44'10	0°37'54
	189 Aug 03 j 14:12	0°☾		minimum elong	197 Jul 29 j 12:18	4°Ω44'10	0°37'54
retrograde	189 Oct 08 j 09:41	1°☾48'33		retrograde	197 Nov 14 j 21:45	9°Ω06'51	
	189 Dec 16 j 04:32	30°RII		opposition	198 Jan 27 j 05:41	7°Ω04'30	0°43'13
opposition	189 Dec 21 j 11:28	29°II46'14	0°20'31	min. Earth dist.	198 Jan 28 j 04:23	7°Ω02'01	17.38754 AU
min. Earth dist.	189 Dec 22 j 06:24	29°II44'10	17.72400 AU	direct	198 Apr 13 j 04:46	4°Ω58'21	
direct	190 Mar 06 j 15:07	27°II42'05					
	190 May 21 j 11:34	0°☾		conjunction	198 Aug 03 j 15:50	9°Ω28'54	0°39'36
conjunction	190 Jun 25 j 17:48	2°☾04'03	0°20'03	minimum elong	198 Aug 03 j 15:49	9°Ω28'54	0°39'37
minimum elong	190 Jun 25 j 17:48	2°☾04'03	0°20'04	max. Earth dist.	198 Aug 02 j 12:31	9°Ω24'38	19.37670 AU
max. Earth dist.	190 Jun 24 j 18:11	2°☾00'27	19.69509 AU	retrograde	198 Nov 19 j 21:22	13°Ω51'48	
retrograde	190 Oct 13 j 07:04	6°☾23'53		opposition	199 Feb 01 j 05:00	11°Ω49'32	0°44'58
opposition	190 Dec 26 j 05:21	4°☾21'27	0°24'00	min. Earth dist.	199 Feb 02 j 04:28	11°Ω46'59	17.36795 AU
min. Earth dist.	190 Dec 27 j 00:55	4°☾19'19	17.66701 AU	direct	199 Apr 18 j 06:00	9°Ω43'19	
direct	191 Mar 11 j 12:41	2°☾16'54		conjunction	199 Aug 08 j 19:36	14°Ω14'29	0°41'02
				minimum elong	199 Aug 08 j 19:36	14°Ω14'29	0°41'01
conjunction	191 Jun 30 j 19:31	6°☾40'13	0°23'07	max. Earth dist.	199 Aug 07 j 16:50	14°Ω10'17	19.35938 AU
minimum elong	191 Jun 30 j 19:31	6°☾40'13	0°23'07		199 Aug 20 j 23:11	15°Ω	
max. Earth dist.	191 Jun 29 j 19:40	6°☾36'34	19.63943 AU	retrograde	199 Nov 24 j 21:51	18°Ω37'28	
retrograde	191 Oct 18 j 03:36	11°☾00'34		opposition	200 Feb 06 j 04:44	16°Ω35'19	0°46'25
opposition	191 Dec 30 j 23:54	8°☾58'04	0°27'21	min. Earth dist.	200 Feb 07 j 03:26	16°Ω32'50	17.35283 AU
min. Earth dist.	191 Dec 31 j 20:53	8°☾55'47	17.61302 AU		200 Mar 18 j 13:39	15°RΩ	
direct	192 Mar 15 j 09:20	6°☾53'09		direct	200 Apr 22 j 08:47	14°Ω29'04	
					200 May 26 j 17:43	15°Ω	
conjunction	192 Jul 04 j 21:28	11°☾17'44	0°26'02	conjunction	200 Aug 12 j 23:17	19°Ω00'40	0°42'11
minimum elong	192 Jul 04 j 21:28	11°☾17'44	0°26'02	minimum elong	200 Aug 12 j 23:17	19°Ω00'40	0°42'11
max. Earth dist.	192 Jul 03 j 19:34	11°☾13'45	19.58728 AU	max. Earth dist.	200 Aug 11 j 20:25	18°Ω56'27	19.34647 AU
retrograde	192 Oct 22 j 01:31	15°☾38'35		retrograde	200 Nov 28 j 20:52	23°Ω23'41	
opposition	193 Jan 03 j 19:11	13°☾36'01	0°30'32	opposition	201 Feb 10 j 05:13	21°Ω21'36	0°47'33
min. Earth dist.	193 Jan 04 j 16:38	13°☾33'41	17.56298 AU	min. Earth dist.	201 Feb 11 j 04:38	21°Ω19'03	17.34226 AU
direct	193 Mar 20 j 07:48	11°☾30'45		direct	201 Apr 27 j 11:24	19°Ω15'20	
				max. Earth dist.	201 Aug 17 j 00:12	23°Ω43'03	19.33815 AU
conjunction	193 Jul 09 j 23:48	15°☾56'32	0°28'48	conjunction	201 Aug 18 j 02:37	23°Ω47'12	0°43'03
minimum elong	193 Jul 09 j 23:48	15°☾56'32	0°28'49	minimum elong	201 Aug 18 j 02:36	23°Ω47'12	0°43'03
max. Earth dist.	193 Jul 08 j 22:25	15°☾52'38	19.53928 AU	retrograde	201 Dec 03 j 21:16	28°Ω10'10	
retrograde	193 Oct 26 j 23:33	20°☾17'51		opposition	202 Feb 15 j 05:54	26°Ω08'09	0°48'21
opposition	194 Jan 08 j 15:13	18°☾15'15	0°33'31	min. Earth dist.	202 Feb 16 j 04:02	26°Ω05'44	17.33611 AU
min. Earth dist.	194 Jan 09 j 13:16	18°☾12'50	17.51735 AU	direct	202 May 02 j 15:54	24°Ω01'51	
direct	194 Mar 25 j 06:01	16°☾09'42		max. Earth dist.	202 Aug 22 j 04:12	28°Ω29'50	19.33424 AU
max. Earth dist.	194 Jul 13 j 23:23	20°☾32'26	19.49614 AU				
conjunction	194 Jul 15 j 02:25	20°☾36'36	0°31'23	conjunction	202 Aug 23 j 05:52	28°Ω33'52	0°43'37
minimum elong	194 Jul 15 j 02:25	20°☾36'36	0°31'23	minimum elong	202 Aug 23 j 05:52	28°Ω33'52	0°43'36
retrograde	194 Oct 31 j 22:11	24°☾58'21			202 Sep 15 j 09:56	0°mp	
opposition	195 Jan 13 j 11:45	22°☾55'45	0°36'18	retrograde	202 Dec 08 j 19:54	2°mp56'39	
min. Earth dist.	195 Jan 14 j 10:14	22°☾53'17	17.47693 AU	opposition	203 Feb 20 j 06:54	0°mp54'42	0°48'49
direct	195 Mar 30 j 05:04	20°☾49'57		min. Earth dist.	203 Feb 21 j 05:39	0°mp52'14	17.33456 AU
max. Earth dist.	195 Jul 19 j 03:19	25°☾13'52	19.45831 AU		203 Mar 14 j 00:15	30°RΩ	
conjunction	195 Jul 20 j 05:34	25°☾17'56	0°33'47	direct	203 May 07 j 19:11	28°Ω48'24	
minimum elong	195 Jul 20 j 05:33	25°☾17'56	0°33'47		203 Jun 29 j 20:31	0°mp	
retrograde	195 Nov 05 j 21:51	29°☾40'01		max. Earth dist.	203 Aug 27 j 07:19	3°mp16'24	19.33514 AU
opposition	196 Jan 18 j 09:05	27°☾37'29	0°38'52	conjunction	203 Aug 28 j 08:43	3°mp20'24	0°43'53
min. Earth dist.	196 Jan 19 j 07:37	27°☾35'01	17.44175 AU	minimum elong	203 Aug 28 j 08:43	3°mp20'24	0°43'53
direct	196 Apr 03 j 04:24	25°☾31'32		retrograde	203 Dec 13 j 20:28	7°mp42'57	
max. Earth dist.	196 Jul 23 j 05:19	29°☾56'12	19.42584 AU	opposition	204 Feb 25 j 08:10	5°mp41'03	0°48'57
conjunction	196 Jul 24 j 08:46	0°Ω00'28	0°35'57	min. Earth dist.	204 Feb 26 j 05:13	5°mp38'46	17.33780 AU
minimum elong	196 Jul 24 j 08:45	0°Ω00'28	0°35'57	direct	204 May 12 j 00:17	3°mp34'45	
	196 Jul 24 j 05:43	0°Ω		max. Earth dist.	204 Aug 31 j 11:24	8°mp02'50	19.34085 AU

conjunction	204 Sep 01 j 11:03	8° <del>10</del> 06'33	0°43'50	minimum elong	212 Oct 09 j 06:13	15° <del>15</del> 45'43	0°33'21
minimum elong	204 Sep 01 j 11:02	8° <del>10</del> 06'33	0°43'50	max. Earth dist.	212 Oct 08 j 21:06	15° <del>15</del> 44'18	19.58664 AU
retrograde	204 Dec 17 j 18:50	12° <del>17</del> 28'48		retrograde	213 Jan 24 j 06:28	20° <del>20</del> 03'40	
opposition	205 Mar 01 j 09:45	10° <del>17</del> 26'56	0°48'44	opposition	213 Apr 08 j 20:55	18° <del>18</del> 02'48	0°35'50
min. Earth dist.	205 Mar 02 j 06:52	10° <del>17</del> 24'39	17.34612 AU	min. Earth dist.	213 Apr 09 j 04:38	18° <del>18</del> 01'59	17.61198 AU
direct	205 May 17 j 02:59	8° <del>17</del> 20'41		direct	213 Jun 25 j 01:57	15° <del>15</del> 58'33	
conjunction	205 Sep 06 j 12:43	12° <del>17</del> 52'08	0°43'30	conjunction	213 Oct 14 j 02:20	20° <del>20</del> 23'11	0°30'57
minimum elong	205 Sep 06 j 12:43	12° <del>17</del> 52'08	0°43'30	minimum elong	213 Oct 14 j 02:20	20° <del>20</del> 23'11	0°30'57
max. Earth dist.	205 Sep 05 j 13:33	12° <del>17</del> 48'29	19.35195 AU	max. Earth dist.	213 Oct 13 j 18:20	20° <del>20</del> 21'56	19.63810 AU
retrograde	205 Dec 22 j 19:27	17° <del>17</del> 14'00		retrograde	214 Jan 29 j 02:08	24° <del>24</del> 40'25	
opposition	206 Mar 06 j 11:10	15° <del>15</del> 12'10	0°48'11	opposition	214 Apr 13 j 21:23	22° <del>22</del> 43'43	0°33'03
min. Earth dist.	206 Mar 07 j 06:13	15° <del>15</del> 10'07	17.35995 AU	min. Earth dist.	214 Apr 14 j 03:47	22° <del>22</del> 43'02	17.66487 AU
direct	206 May 22 j 07:33	13° <del>13</del> 05'58		direct	214 Jun 30 j 02:39	20° <del>20</del> 43'50	
conjunction	206 Sep 11 j 13:57	17° <del>17</del> 36'58	0°42'51	conjunction	214 Oct 18 j 21:46	24° <del>24</del> 59'12	0°28'21
minimum elong	206 Sep 11 j 13:57	17° <del>17</del> 36'58	0°42'51	minimum elong	214 Oct 18 j 21:47	24° <del>24</del> 59'12	0°28'21
max. Earth dist.	206 Sep 10 j 17:18	17° <del>17</del> 33'43	19.36859 AU	max. Earth dist.	214 Oct 18 j 16:11	24° <del>24</del> 58'20	19.69219 AU
retrograde	206 Dec 27 j 17:36	21° <del>21</del> 58'23		retrograde	215 Feb 02 j 22:29	29° <del>29</del> 15'41	
opposition	207 Mar 11 j 12:53	19° <del>19</del> 56'37	0°47'18	opposition	215 Apr 18 j 21:34	27° <del>27</del> 15'08	0°30'03
min. Earth dist.	207 Mar 12 j 07:24	19° <del>19</del> 54'37	17.37945 AU	min. Earth dist.	215 Apr 19 j 01:47	27° <del>27</del> 14'41	17.71984 AU
direct	207 May 27 j 09:49	17° <del>17</del> 50'32		direct	215 Jul 05 j 04:35	25° <del>25</del> 11'38	
conjunction	207 Sep 16 j 14:20	22° <del>22</del> 20'55	0°41'56	conjunction	215 Oct 23 j 16:12	29° <del>29</del> 43'38	0°25'36
minimum elong	207 Sep 16 j 14:20	22° <del>22</del> 20'55	0°41'55	minimum elong	215 Oct 23 j 16:12	29° <del>29</del> 43'38	0°25'36
max. Earth dist.	207 Sep 15 j 18:23	22° <del>22</del> 17'47	19.39113 AU	max. Earth dist.	215 Oct 23 j 11:57	29° <del>29</del> 43'25	19.74808 AU
retrograde	208 Jan 01 j 17:26	26° <del>26</del> 41'51			215 Oct 30 j 17:51	0° <del>0</del> 0'00	
opposition	208 Mar 15 j 14:26	24° <del>24</del> 40'09	0°46'06	retrograde	216 Feb 07 j 16:37	3° <del>3</del> 00'49	21
min. Earth dist.	208 Mar 16 j 06:38	24° <del>24</del> 38'25	17.40498 AU	opposition	216 Apr 22 j 21:25	1° <del>1</del> 00'48	56
direct	208 May 31 j 13:49	22° <del>22</del> 34'15		min. Earth dist.	216 Apr 23 j 00:32	1° <del>1</del> 00'48	36
					216 Jun 15 j 07:49	30° <del>30</del> 00'00	17.77662 AU
conjunction	208 Sep 20 j 14:16	27° <del>27</del> 03'56	0°40'43	direct	216 Jul 09 j 03:42	29° <del>29</del> 45'47	
minimum elong	208 Sep 20 j 14:16	27° <del>27</del> 03'56	0°40'44		216 Aug 01 j 13:52	0° <del>0</del> 0'00	
max. Earth dist.	208 Sep 19 j 21:21	27° <del>27</del> 01'17	19.41970 AU				
	208 Nov 10 j 10:54	0° <del>0</del> 0'00		conjunction	216 Oct 27 j 09:52	4° <del>4</del> 00'06	22
retrograde	209 Jan 05 j 15:21	1° <del>1</del> 00'24	20	minimum elong	216 Oct 27 j 09:52	4° <del>4</del> 00'06	22
	209 Mar 05 j 22:32	30° <del>30</del> 00'00	17	max. Earth dist.	216 Oct 27 j 07:45	4° <del>4</del> 00'06	03
opposition	209 Mar 20 j 16:07	29° <del>29</del> 22'46	0°44'36	retrograde	217 Feb 11 j 11:56	8° <del>8</del> 00'21	16
min. Earth dist.	209 Mar 21 j 07:08	29° <del>29</del> 21'09	17.43644 AU	opposition	217 Apr 27 j 20:31	6° <del>6</del> 00'20	57
direct	209 Jun 05 j 16:00	27° <del>27</del> 17'07		min. Earth dist.	217 Apr 27 j 21:06	6° <del>6</del> 00'20	54
	209 Aug 27 j 17:04	0° <del>0</del> 0'00		direct	217 Jul 14 j 03:48	4° <del>4</del> 00'18	09
conjunction	209 Sep 25 j 13:11	1° <del>1</del> 00'45	58	conjunction	217 Nov 01 j 02:30	8° <del>8</del> 00'37	16
minimum elong	209 Sep 25 j 13:11	1° <del>1</del> 00'45	58	minimum elong	217 Nov 01 j 02:30	8° <del>8</del> 00'37	16
max. Earth dist.	209 Sep 24 j 21:09	1° <del>1</del> 00'43	27	max. Earth dist.	217 Nov 01 j 02:04	8° <del>8</del> 00'37	12
retrograde	210 Jan 10 j 14:12	6° <del>6</del> 00'05	49	retrograde	218 Feb 16 j 04:53	12° <del>12</del> 00'51	20
opposition	210 Mar 25 j 17:31	4° <del>4</del> 00'04	24	opposition	218 May 02 j 19:08	10° <del>10</del> 00'51	06
min. Earth dist.	210 Mar 26 j 06:22	4° <del>4</del> 00'03	02	min. Earth dist.	218 May 02 j 18:50	10° <del>10</del> 00'51	08
direct	210 Jun 10 j 19:01	1° <del>1</del> 00'45	90	direct	218 Jul 19 j 01:16	8° <del>8</del> 00'48	36
conjunction	210 Sep 30 j 11:42	6° <del>6</del> 00'27	00	conjunction	218 Nov 05 j 18:15	13° <del>13</del> 00'06	13
minimum elong	210 Sep 30 j 11:42	6° <del>6</del> 00'27	00	minimum elong	218 Nov 05 j 18:15	13° <del>13</del> 00'06	13
max. Earth dist.	210 Sep 29 j 22:42	6° <del>6</del> 00'24	58	max. Earth dist.	218 Nov 05 j 19:44	13° <del>13</del> 00'06	26
retrograde	211 Jan 15 j 11:43	10° <del>10</del> 00'46	14		218 Dec 07 j 14:13	15° <del>15</del> 00'00	
opposition	211 Mar 30 j 18:45	8° <del>8</del> 00'45	01	retrograde	219 Feb 20 j 22:57	17° <del>17</del> 00'19	25
min. Earth dist.	211 Mar 31 j 06:09	8° <del>8</del> 00'43	48	opposition	219 May 07 j 16:55	15° <del>15</del> 00'19	15
direct	211 Jun 15 j 21:28	6° <del>6</del> 00'40	01	min. Earth dist.	219 May 07 j 13:46	15° <del>15</del> 00'19	34
					219 May 15 j 11:54	15° <del>15</del> 00'19	34
conjunction	211 Oct 05 j 09:20	11° <del>11</del> 00'06	57	direct	219 Jul 23 j 23:22	13° <del>13</del> 00'17	05
minimum elong	211 Oct 05 j 09:20	11° <del>11</del> 00'06	57		219 Sep 26 j 20:37	15° <del>15</del> 00'00	
max. Earth dist.	211 Oct 04 j 21:19	11° <del>11</del> 00'05	04				
retrograde	212 Jan 20 j 09:14	15° <del>15</del> 00'25	34	conjunction	219 Nov 10 j 09:02	17° <del>17</del> 00'33	09
opposition	212 Apr 03 j 19:57	13° <del>13</del> 00'24	31	minimum elong	219 Nov 10 j 09:02	17° <del>17</del> 00'33	09
min. Earth dist.	212 Apr 04 j 05:33	13° <del>13</del> 00'23	30	behind sun begin	219 Nov 10 j 05:08	17° <del>17</del> 00'32	34
direct	212 Jun 19 j 23:25	11° <del>11</del> 00'19	53	behind sun end	219 Nov 10 j 12:56	17° <del>17</del> 00'33	44
				max. Earth dist.	219 Nov 10 j 12:43	17° <del>17</del> 00'33	42
conjunction	212 Oct 09 j 06:13	15° <del>15</del> 00'45	43	retrograde	220 Feb 25 j 14:56	21° <del>21</del> 00'45	31

opposition	220 May 11 j 14:18	19° $\mathbb{M}$ 45'23	0°12'58	conjunction	226 Dec 09 j 18:14	17° $\mathbb{Z}$ 50'06	0°-9'-41
min. Earth dist.	220 May 11 j 10:07	19° $\mathbb{M}$ 45'49	18.01611 AU	minimum elong	226 Dec 09 j 18:15	17° $\mathbb{Z}$ 50'06	0°09'43
direct	220 Jul 27 j 19:12	17° $\mathbb{M}$ 43'33		behind sun begin	226 Dec 09 j 12:50	17° $\mathbb{Z}$ 49'18	
				behind sun end	226 Dec 09 j 23:39	17° $\mathbb{Z}$ 50'53	
conjunction	220 Nov 13 j 22:48	21° $\mathbb{M}$ 58'04	0°10'04	max. Earth dist.	226 Dec 10 j 10:32	17° $\mathbb{Z}$ 52'32	20.43793 AU
minimum elong	220 Nov 13 j 22:48	21° $\mathbb{M}$ 58'04	0°10'04	retrograde	227 Mar 27 j 22:37	21° $\mathbb{Z}$ 57'12	
behind sun begin	220 Nov 13 j 17:29	21° $\mathbb{M}$ 57'16		opposition	227 Jun 12 j 23:49	19° $\mathbb{Z}$ 57'52	0°-12'-26
behind sun end	220 Nov 14 j 04:07	21° $\mathbb{M}$ 58'51		min. Earth dist.	227 Jun 12 j 06:18	19° $\mathbb{Z}$ 59'38	18.46921 AU
max. Earth dist.	220 Nov 14 j 04:24	21° $\mathbb{M}$ 58'54	20.04772 AU	direct	227 Aug 28 j 21:26	17° $\mathbb{Z}$ 58'45	
retrograde	221 Mar 01 j 08:09	26° $\mathbb{M}$ 09'36					
opposition	221 May 16 j 10:47	24° $\mathbb{M}$ 09'33	0°09'19	conjunction	227 Dec 14 j 03:25	22° $\mathbb{Z}$ 03'14	0°-12'-49
min. Earth dist.	221 May 16 j 03:29	24° $\mathbb{M}$ 10'18	18.07931 AU	minimum elong	227 Dec 14 j 03:25	22° $\mathbb{Z}$ 03'14	0°12'49
direct	221 Aug 01 j 15:33	22° $\mathbb{M}$ 08'03		behind sun begin	227 Dec 13 j 23:15	22° $\mathbb{Z}$ 02'37	
				behind sun end	227 Dec 14 j 07:35	22° $\mathbb{Z}$ 03'50	
conjunction	221 Nov 18 j 11:55	26° $\mathbb{M}$ 21'03	0°06'47	max. Earth dist.	227 Dec 14 j 21:51	22° $\mathbb{Z}$ 05'58	20.49996 AU
minimum elong	221 Nov 18 j 11:55	26° $\mathbb{M}$ 21'03	0°06'46	retrograde	228 Mar 31 j 09:40	26° $\mathbb{Z}$ 09'41	
behind sun begin	221 Nov 18 j 05:47	26° $\mathbb{M}$ 20'08		opposition	228 Jun 16 j 15:49	24° $\mathbb{Z}$ 10'28	0°-15'-52
behind sun end	221 Nov 18 j 18:02	26° $\mathbb{M}$ 21'57		min. Earth dist.	228 Jun 15 j 21:59	24° $\mathbb{Z}$ 12'15	18.53007 AU
max. Earth dist.	221 Nov 18 j 19:56	26° $\mathbb{M}$ 22'15	20.11155 AU	direct	228 Sep 01 j 11:07	22° $\mathbb{Z}$ 11'42	
	222 Jan 30 j 00:25	0° $\mathbb{Z}$					
retrograde	222 Mar 05 j 22:37	0° $\mathbb{Z}$ 31'46		conjunction	228 Dec 17 j 11:55	26° $\mathbb{Z}$ 14'53	0°-15'-51
	222 Apr 10 j 23:51	30° $\mathbb{R}\mathbb{M}$		minimum elong	228 Dec 17 j 11:55	26° $\mathbb{Z}$ 14'53	0°15'53
opposition	222 May 21 j 06:34	28° $\mathbb{M}$ 31'48	0°05'38	behind sun begin	228 Dec 17 j 10:27	26° $\mathbb{Z}$ 14'40	
min. Earth dist.	222 May 20 j 22:19	28° $\mathbb{M}$ 32'39	18.14385 AU	behind sun end	228 Dec 17 j 13:23	26° $\mathbb{Z}$ 15'06	
direct	222 Aug 06 j 09:58	26° $\mathbb{M}$ 30'42		max. Earth dist.	228 Dec 18 j 06:36	26° $\mathbb{Z}$ 17'39	20.55943 AU
	222 Nov 11 j 09:37	0° $\mathbb{Z}$			229 Mar 07 j 04:26	0° $\mathbb{Z}$	
				retrograde	229 Apr 04 j 23:04	0° $\mathbb{Z}$ 20'44	
conjunction	222 Nov 23 j 00:11	0° $\mathbb{Z}$ 42'11	0°03'29		229 May 04 j 07:32	30° $\mathbb{R}\mathbb{Z}$	
minimum elong	222 Nov 23 j 00:10	0° $\mathbb{Z}$ 42'11	0°03'29	min. Earth dist.	229 Jun 20 j 11:26	28° $\mathbb{Z}$ 23'33	18.58804 AU
behind sun begin	222 Nov 22 j 17:41	0° $\mathbb{Z}$ 41'13		opposition	229 Jun 21 j 07:00	28° $\mathbb{Z}$ 21'35	0°-19'-12
behind sun end	222 Nov 23 j 06:40	0° $\mathbb{Z}$ 43'09		direct	229 Sep 06 j 01:00	26° $\mathbb{Z}$ 23'07	
max. Earth dist.	222 Nov 23 j 09:43	0° $\mathbb{Z}$ 43'37	20.17671 AU		229 Dec 14 j 18:43	0° $\mathbb{Z}$	
retrograde	223 Mar 10 j 15:17	4° $\mathbb{Z}$ 52'07					
opposition	223 May 26 j 01:42	2° $\mathbb{Z}$ 52'16	0°01'57	conjunction	229 Dec 21 j 20:06	0° $\mathbb{Z}$ 25'05	0°-18'-48
min. Earth dist.	223 May 25 j 14:24	2° $\mathbb{Z}$ 53'26	18.20940 AU	minimum elong	229 Dec 21 j 20:06	0° $\mathbb{Z}$ 25'05	0°18'49
direct	223 Aug 11 j 04:34	0° $\mathbb{Z}$ 51'34		max. Earth dist.	229 Dec 22 j 16:36	0° $\mathbb{Z}$ 28'07	20.61558 AU
				retrograde	230 Apr 09 j 09:10	4° $\mathbb{Z}$ 30'20	
conjunction	223 Nov 27 j 11:39	5° $\mathbb{Z}$ 01'35	0°00'06	opposition	230 Jun 25 j 21:29	2° $\mathbb{Z}$ 31'14	0°-22'-24
minimum elong	223 Nov 27 j 11:39	5° $\mathbb{Z}$ 01'35	0°00'07	min. Earth dist.	230 Jun 25 j 01:47	2° $\mathbb{Z}$ 33'12	18.64247 AU
behind sun begin	223 Nov 27 j 05:20	5° $\mathbb{Z}$ 00'39		direct	230 Sep 10 j 13:31	0° $\mathbb{Z}$ 33'03	
behind sun end	223 Nov 27 j 17:57	5° $\mathbb{Z}$ 02'30					
max. Earth dist.	223 Nov 27 j 23:44	5° $\mathbb{Z}$ 03'24	20.24250 AU	conjunction	230 Dec 26 j 03:40	4° $\mathbb{Z}$ 33'49	0°-21'-38
desc. node	223 Dec 08 j 13:42	5° $\mathbb{Z}$ 41'45		minimum elong	230 Dec 26 j 03:39	4° $\mathbb{Z}$ 33'49	0°21'39
retrograde	224 Mar 14 j 04:26	9° $\mathbb{Z}$ 10'46		max. Earth dist.	230 Dec 27 j 00:07	4° $\mathbb{Z}$ 36'50	20.66831 AU
opposition	224 May 29 j 20:22	7° $\mathbb{Z}$ 11'03	0°-1'-42	retrograde	231 Apr 13 j 21:04	8° $\mathbb{Z}$ 38'31	
min. Earth dist.	224 May 29 j 08:14	7° $\mathbb{Z}$ 12'17	18.27538 AU	opposition	231 Jun 30 j 11:22	6° $\mathbb{Z}$ 39'24	0°-25'-28
direct	224 Aug 14 j 21:41	5° $\mathbb{Z}$ 10'46		min. Earth dist.	231 Jun 29 j 14:11	6° $\mathbb{Z}$ 41'32	18.69349 AU
				direct	231 Sep 15 j 01:39	4° $\mathbb{Z}$ 41'27	
conjunction	224 Nov 30 j 22:26	9° $\mathbb{Z}$ 19'19	0°-3'-15				
minimum elong	224 Nov 30 j 22:28	9° $\mathbb{Z}$ 19'19	0°03'16	conjunction	231 Dec 30 j 10:41	8° $\mathbb{Z}$ 41'05	0°-24'-21
behind sun begin	224 Nov 30 j 15:58	9° $\mathbb{Z}$ 18'22		minimum elong	231 Dec 30 j 10:41	8° $\mathbb{Z}$ 41'05	0°24'22
behind sun end	224 Dec 01 j 04:58	9° $\mathbb{Z}$ 20'17		max. Earth dist.	231 Dec 31 j 09:03	8° $\mathbb{Z}$ 44'23	20.71751 AU
max. Earth dist.	224 Dec 01 j 11:43	9° $\mathbb{Z}$ 21'19	20.30851 AU	retrograde	232 Apr 17 j 06:36	12° $\mathbb{Z}$ 45'15	
retrograde	225 Mar 18 j 20:07	13° $\mathbb{Z}$ 27'47		min. Earth dist.	232 Jul 03 j 03:07	10° $\mathbb{Z}$ 48'16	18.74105 AU
opposition	225 Jun 03 j 14:03	11° $\mathbb{Z}$ 28'12	0°-5'-20	opposition	232 Jul 04 j 00:33	10° $\mathbb{Z}$ 46'07	0°-28'-23
min. Earth dist.	225 Jun 02 j 23:16	11° $\mathbb{Z}$ 29'42	18.34120 AU	direct	232 Sep 18 j 12:58	8° $\mathbb{Z}$ 48'22	
direct	225 Aug 19 j 14:40	9° $\mathbb{Z}$ 28'18					
				conjunction	233 Jan 02 j 17:13	12° $\mathbb{Z}$ 46'56	0°-26'-54
conjunction	225 Dec 05 j 08:44	13° $\mathbb{Z}$ 35'29	0°-6'-30	minimum elong	233 Jan 02 j 17:13	12° $\mathbb{Z}$ 46'56	0°26'55
minimum elong	225 Dec 05 j 08:43	13° $\mathbb{Z}$ 35'29	0°06'30	max. Earth dist.	233 Jan 03 j 15:30	12° $\mathbb{Z}$ 50'12	20.76354 AU
behind sun begin	225 Dec 05 j 02:34	13° $\mathbb{Z}$ 34'34		retrograde	233 Apr 21 j 16:50	16° $\mathbb{Z}$ 50'36	
behind sun end	225 Dec 05 j 14:53	13° $\mathbb{Z}$ 36'23		opposition	233 Jul 08 j 12:48	14° $\mathbb{Z}$ 51'27	0°-31'-7
max. Earth dist.	225 Dec 06 j 00:18	13° $\mathbb{Z}$ 37'49	20.37385 AU	min. Earth dist.	233 Jul 07 j 14:07	14° $\mathbb{Z}$ 53'43	18.78569 AU
retrograde	226 Mar 23 j 08:07	17° $\mathbb{Z}$ 43'14		direct	233 Sep 22 j 23:07	12° $\mathbb{Z}$ 53'51	
opposition	226 Jun 08 j 07:18	15° $\mathbb{Z}$ 43'48	0°-8'-55				
min. Earth dist.	226 Jun 07 j 16:01	15° $\mathbb{Z}$ 45'20	18.40601 AU	conjunction	234 Jan 06 j 23:28	16° $\mathbb{Z}$ 51'27	0°-29'-19
direct	226 Aug 24 j 05:53	13° $\mathbb{Z}$ 44'18		minimum elong	234 Jan 06 j 23:28	16° $\mathbb{Z}$ 51'27	0°29'20

max. Earth dist.	234 Jan 07 j 23:36	16°☾54'58	20.80662 AU	conjunction	242 Feb 07 j 18:26	18°☾58'08	0°-42'-17
retrograde	234 Apr 26 j 01:42	20°☾54'39		minimum elong	242 Feb 07 j 18:26	18°☾58'08	0°42'17
min. Earth dist.	234 Jul 12 j 01:26	18°☾57'48	18.82746 AU	max. Earth dist.	242 Feb 08 j 21:11	19°☾01'58	21.04145 AU
opposition	234 Jul 13 j 00:32	18°☾55'29	0°-33'-41	retrograde	242 May 29 j 01:18	22°☾59'53	
direct	234 Sep 27 j 08:43	16°☾58'06		min. Earth dist.	242 Aug 14 j 04:07	21°☾03'15	19.04758 AU
				opposition	242 Aug 15 j 04:28	21°☾00'49	0°-47'-10
conjunction	235 Jan 11 j 05:05	20°☾54'46	0°-31'-33	direct	242 Oct 29 j 16:18	19°☾04'39	
minimum elong	235 Jan 11 j 05:05	20°☾54'46	0°31'34				
max. Earth dist.	235 Jan 12 j 05:06	20°☾58'15	20.84712 AU	conjunction	243 Feb 11 j 23:51	22°☾57'12	0°-43'-3
retrograde	235 Apr 30 j 11:18	24°☾57'37		minimum elong	243 Feb 11 j 23:51	22°☾57'12	0°43'04
min. Earth dist.	235 Jul 16 j 11:27	23°☾00'51	18.86677 AU	max. Earth dist.	243 Feb 13 j 00:56	23°☾00'47	21.05138 AU
opposition	235 Jul 17 j 11:41	22°☾58'26	0°-36'-5	retrograde	243 Jun 02 j 10:24	26°☾59'00	
direct	235 Oct 01 j 17:22	21°☾01'13		opposition	243 Aug 19 j 12:31	24°☾59'51	0°-47'-53
				min. Earth dist.	243 Aug 18 j 12:58	25°☾02'12	19.05475 AU
conjunction	236 Jan 15 j 10:44	24°☾57'04	0°-33'-38	direct	243 Nov 02 j 21:07	23°☾03'41	
minimum elong	236 Jan 15 j 10:44	24°☾57'04	0°33'39				
max. Earth dist.	236 Jan 16 j 12:31	25°☾00'49	20.88502 AU	conjunction	244 Feb 16 j 05:43	26°☾56'05	0°-43'-35
retrograde	236 May 03 j 19:39	28°☾59'35		minimum elong	244 Feb 16 j 05:43	26°☾56'05	0°43'35
opposition	236 Jul 20 j 22:11	27°☾00'25	0°-38'-16	max. Earth dist.	244 Feb 17 j 07:10	26°☾59'43	21.05570 AU
min. Earth dist.	236 Jul 19 j 21:37	27°☾02'53	18.90335 AU		244 Apr 17 j 00:45	0°☾	
direct	236 Oct 05 j 01:04	25°☾03'24		retrograde	244 Jun 05 j 18:29	0°☾57'55	
					244 Jul 27 j 01:56	30°☾	
conjunction	237 Jan 18 j 16:00	28°☾58'31	0°-35'-32	opposition	244 Aug 22 j 20:04	28°☾58'40	0°-48'-22
minimum elong	237 Jan 18 j 16:00	28°☾58'31	0°35'33	min. Earth dist.	244 Aug 21 j 21:07	29°☾00'59	19.05626 AU
max. Earth dist.	237 Jan 19 j 17:21	29°☾02'12	20.92024 AU	direct	244 Nov 06 j 03:50	27°☾02'28	
	237 Feb 05 j 12:23	0°☾			245 Feb 03 j 09:25	0°☾	
retrograde	237 May 08 j 05:19	3°☾00'47					
min. Earth dist.	237 Jul 24 j 06:59	1°☾04'09	18.93713 AU	conjunction	245 Feb 19 j 11:33	0°☾54'47	0°-43'-55
opposition	237 Jul 25 j 08:13	1°☾01'38	0°-40'-17	minimum elong	245 Feb 19 j 11:34	0°☾54'47	0°43'56
	237 Aug 21 j 08:51	30°☾		max. Earth dist.	245 Feb 20 j 11:07	0°☾58'09	21.05466 AU
direct	237 Oct 09 j 08:35	29°☾04'48		retrograde	245 Jun 10 j 03:27	4°☾56'43	
	237 Nov 25 j 08:24	0°☾		min. Earth dist.	245 Aug 26 j 05:34	2°☾59'33	19.05269 AU
				opposition	245 Aug 27 j 03:28	2°☾57'20	0°-48'-37
conjunction	238 Jan 22 j 21:16	2°☾59'18	0°-37'-16	direct	245 Nov 10 j 08:43	1°☾01'03	
minimum elong	238 Jan 22 j 21:16	2°☾59'18	0°37'17				
max. Earth dist.	238 Jan 24 j 00:09	3°☾03'11	20.95231 AU	conjunction	246 Feb 23 j 17:36	4°☾53'21	0°-44'-2
retrograde	238 May 12 j 13:28	7°☾01'21		minimum elong	246 Feb 23 j 17:36	4°☾53'21	0°44'04
opposition	238 Jul 29 j 17:45	5°☾02'14	0°-42'-5	max. Earth dist.	246 Feb 24 j 17:34	4°☾56'47	21.04862 AU
min. Earth dist.	238 Jul 28 j 16:24	5°☾04'46	18.96751 AU	retrograde	246 Jun 14 j 11:07	8°☾55'26	
direct	238 Oct 13 j 15:13	3°☾05'36		opposition	246 Aug 31 j 10:32	6°☾55'55	0°-48'-38
				min. Earth dist.	246 Aug 30 j 13:05	6°☾58'05	19.04434 AU
conjunction	239 Jan 27 j 02:22	6°☾59'31	0°-38'-49	direct	246 Nov 14 j 14:43	4°☾59'32	
minimum elong	239 Jan 27 j 02:22	6°☾59'31	0°38'50				
max. Earth dist.	239 Jan 28 j 04:31	7°☾03'18	20.98101 AU	conjunction	247 Feb 27 j 23:47	8°☾51'55	0°-43'-56
retrograde	239 May 16 j 23:00	11°☾01'26		minimum elong	247 Feb 27 j 23:47	8°☾51'55	0°43'57
min. Earth dist.	239 Aug 02 j 01:29	9°☾04'54	18.99440 AU	max. Earth dist.	247 Feb 28 j 21:57	8°☾55'05	21.03829 AU
opposition	239 Aug 03 j 03:00	9°☾02'21	0°-43'-41	retrograde	247 Jun 18 j 20:13	12°☾54'12	
direct	239 Oct 17 j 21:37	7°☾05'52		opposition	247 Sep 04 j 17:29	10°☾54'33	0°-48'-24
				min. Earth dist.	247 Sep 03 j 21:06	10°☾56'36	19.03207 AU
conjunction	240 Jan 31 j 07:36	10°☾59'21	0°-40'-10	direct	247 Nov 18 j 19:28	8°☾58'02	
minimum elong	240 Jan 31 j 07:36	10°☾59'21	0°40'11				
max. Earth dist.	240 Feb 01 j 10:57	11°☾03'17	21.00580 AU	conjunction	248 Mar 03 j 06:26	12°☾50'37	0°-43'-38
	240 May 13 j 09:50	15°☾		minimum elong	248 Mar 03 j 06:26	12°☾50'37	0°43'40
retrograde	240 May 20 j 07:35	15°☾01'10		max. Earth dist.	248 Mar 04 j 04:59	12°☾53'51	21.02406 AU
	240 May 27 j 07:22	15°☾		retrograde	248 Jun 22 j 04:16	16°☾53'10	
min. Earth dist.	240 Aug 05 j 10:33	13°☾04'38	19.01699 AU	min. Earth dist.	248 Sep 07 j 04:16	14°☾55'25	19.01595 AU
opposition	240 Aug 06 j 11:51	13°☾02'06	0°-45'-4	opposition	248 Sep 08 j 00:13	14°☾53'23	0°-47'-57
direct	240 Oct 21 j 04:16	11°☾05'46		direct	248 Nov 22 j 00:45	12°☾56'46	
conjunction	241 Feb 03 j 12:54	14°☾58'51	0°-41'-20	conjunction	249 Mar 07 j 13:18	16°☾49'38	0°-43'-7
minimum elong	241 Feb 03 j 12:54	14°☾58'51	0°41'21	minimum elong	249 Mar 07 j 13:18	16°☾49'38	0°43'07
	241 Feb 03 j 20:53	15°☾		max. Earth dist.	249 Mar 08 j 09:52	16°☾52'34	21.00626 AU
max. Earth dist.	241 Feb 04 j 14:59	15°☾02'36	21.02614 AU	retrograde	249 Jun 26 j 13:26	20°☾52'30	
retrograde	241 May 24 j 16:45	19°☾00'37		opposition	249 Sep 12 j 06:51	18°☾52'37	0°-47'-16
opposition	241 Aug 10 j 20:15	17°☾01'34	0°-46'-14	min. Earth dist.	249 Sep 11 j 12:10	18°☾54'31	18.99648 AU
min. Earth dist.	241 Aug 09 j 19:25	17°☾04'03	19.03497 AU	direct	249 Nov 26 j 05:24	16°☾55'53	
direct	241 Oct 25 j 09:25	15°☾05'20					

conjunction	250 Mar 11 j 20:43	20° <del>✕</del> 49'09	0°-42'-24	conjunction	258 Apr 14 j 05:57	23° <del>Υ</del> 20'39	0°-29'-25
minimum elong	250 Mar 11 j 20:43	20° <del>✕</del> 49'09	0°42'25	minimum elong	258 Apr 14 j 05:57	23° <del>Υ</del> 20'39	0°29'26
max. Earth dist.	250 Mar 12 j 17:31	20° <del>✕</del> 52'07	20.98510 AU	max. Earth dist.	258 Apr 14 j 13:36	23° <del>Υ</del> 21'45	20.68434 AU
retrograde	250 Jun 30 j 22:31	24° <del>✕</del> 52'24		retrograde	258 Aug 03 j 12:17	27° <del>Υ</del> 28'32	
opposition	250 Sep 16 j 13:32	22° <del>✕</del> 52'26	0°-46'-21	opposition	258 Oct 19 j 01:14	25° <del>Υ</del> 27'49	0°-31'-12
min. Earth dist.	250 Sep 15 j 19:18	22° <del>✕</del> 54'17	18.97361 AU	min. Earth dist.	258 Oct 18 j 19:16	25° <del>Υ</del> 28'26	18.65695 AU
direct	250 Nov 30 j 10:41	20° <del>✕</del> 55'36		direct	259 Jan 01 j 15:40	23° <del>Υ</del> 29'19	
conjunction	251 Mar 16 j 04:21	24° <del>✕</del> 49'20	0°-41'-28	conjunction	259 Apr 18 j 19:05	27° <del>Υ</del> 29'54	0°-26'-58
minimum elong	251 Mar 16 j 04:21	24° <del>✕</del> 49'20	0°41'28	minimum elong	259 Apr 18 j 19:06	27° <del>Υ</del> 29'54	0°26'59
max. Earth dist.	251 Mar 16 j 23:03	24° <del>✕</del> 52'00	20.96073 AU	max. Earth dist.	259 Apr 18 j 23:39	27° <del>Υ</del> 30'33	20.62897 AU
retrograde	251 Jul 05 j 07:54	28° <del>✕</del> 53'03			259 Jun 04 j 01:40	0° <del>♂</del>	
opposition	251 Sep 20 j 20:22	26° <del>✕</del> 53'00	0°-45'-13	retrograde	259 Aug 07 j 23:53	1° <del>♂</del> 38'29	
min. Earth dist.	251 Sep 20 j 03:41	26° <del>✕</del> 54'42	18.94760 AU		259 Oct 14 j 09:49	30° <del>♂</del>	
direct	251 Dec 04 j 15:22	24° <del>✕</del> 56'03		opposition	259 Oct 23 j 10:00	29° <del>Υ</del> 37'34	0°-28'-24
conjunction	252 Mar 19 j 12:52	28° <del>✕</del> 50'23	0°-40'-20	min. Earth dist.	259 Oct 23 j 06:34	29° <del>Υ</del> 37'55	18.60013 AU
minimum elong	252 Mar 19 j 12:52	28° <del>✕</del> 50'23	0°40'21	direct	260 Jan 05 j 23:34	27° <del>Υ</del> 38'40	
max. Earth dist.	252 Mar 20 j 07:32	28° <del>✕</del> 53'03	20.93304 AU		260 Mar 23 j 17:01	0° <del>♂</del>	
retrograde	252 Apr 09 j 02:06	0° <del>♂</del>		conjunction	260 Apr 22 j 09:16	1° <del>♂</del> 40'25	0°-24'-22
min. Earth dist.	252 Jul 08 j 18:23	2° <del>♂</del> 54'35		minimum elong	260 Apr 22 j 09:16	1° <del>♂</del> 40'25	0°24'23
opposition	252 Sep 23 j 11:09	0° <del>♂</del> 56'07	18.91810 AU	max. Earth dist.	260 Apr 22 j 12:55	1° <del>♂</del> 40'56	20.57089 AU
direct	252 Sep 24 j 03:04	0° <del>♂</del> 54'30	0°-43'-52	retrograde	260 Aug 11 j 13:15	5° <del>♂</del> 49'40	
	252 Oct 17 j 05:11	30° <del>♂</del>		opposition	260 Oct 26 j 18:51	3° <del>♂</del> 48'34	0°-25'-27
	252 Dec 07 j 21:21	28° <del>✕</del> 57'25		min. Earth dist.	260 Oct 26 j 16:18	3° <del>♂</del> 48'51	18.54086 AU
	253 Jan 26 j 21:53	0° <del>♂</del>		direct	261 Jan 09 j 09:34	1° <del>♂</del> 49'18	
conjunction	253 Mar 23 j 21:53	2° <del>♂</del> 52'27	0°-39'00	conjunction	261 Apr 26 j 23:57	5° <del>♂</del> 52'14	0°-21'-37
minimum elong	253 Mar 23 j 21:53	2° <del>♂</del> 52'27	0°39'01	minimum elong	261 Apr 26 j 23:57	5° <del>♂</del> 52'14	0°21'37
max. Earth dist.	253 Mar 24 j 14:00	2° <del>♂</del> 54'45	20.90187 AU	max. Earth dist.	261 Apr 27 j 00:40	5° <del>♂</del> 52'20	20.51071 AU
retrograde	253 Jul 13 j 03:51	6° <del>♂</del> 57'13		retrograde	261 Aug 16 j 01:48	10° <del>♂</del> 02'13	
opposition	253 Sep 28 j 10:11	4° <del>♂</del> 57'04	0°-42'-17	opposition	261 Oct 31 j 04:23	8° <del>♂</del> 00'56	0°-22'-20
min. Earth dist.	253 Sep 27 j 20:14	4° <del>♂</del> 58'29	18.88507 AU	min. Earth dist.	261 Oct 31 j 04:17	8° <del>♂</del> 00'57	18.47995 AU
direct	253 Dec 12 j 02:12	2° <del>♂</del> 59'51		direct	262 Jan 13 j 18:11	6° <del>♂</del> 01'16	
conjunction	254 Mar 28 j 07:35	6° <del>♂</del> 55'39	0°-37'-28	conjunction	262 May 01 j 15:22	10° <del>♂</del> 05'27	0°-18'-45
minimum elong	254 Mar 28 j 07:35	6° <del>♂</del> 55'39	0°37'29	minimum elong	262 May 01 j 15:22	10° <del>♂</del> 05'27	0°18'46
max. Earth dist.	254 Mar 28 j 23:19	6° <del>♂</del> 57'54	20.86689 AU	max. Earth dist.	262 May 01 j 15:19	10° <del>♂</del> 05'27	20.44918 AU
retrograde	254 Jul 17 j 15:19	11° <del>♂</del> 01'00		retrograde	262 Aug 20 j 16:49	14° <del>♂</del> 16'11	
opposition	254 Oct 02 j 17:26	9° <del>♂</del> 00'48	0°-40'-29	opposition	262 Nov 04 j 14:15	12° <del>♂</del> 14'45	0°-19'-5
min. Earth dist.	254 Oct 02 j 04:27	9° <del>♂</del> 02'08	18.84799 AU	min. Earth dist.	262 Nov 04 j 14:48	12° <del>♂</del> 14'41	18.41785 AU
direct	254 Dec 16 j 09:30	7° <del>♂</del> 03'26		direct	263 Jan 18 j 05:27	10° <del>♂</del> 14'42	
conjunction	255 Apr 01 j 18:01	11° <del>♂</del> 00'04	0°-35'-44	conjunction	263 May 06 j 07:39	14° <del>♂</del> 20'12	0°-15'-45
minimum elong	255 Apr 01 j 18:01	11° <del>♂</del> 00'04	0°35'46	minimum elong	263 May 06 j 07:39	14° <del>♂</del> 20'12	0°15'46
max. Earth dist.	255 Apr 02 j 06:47	11° <del>♂</del> 01'54	20.82779 AU	max. Earth dist.	263 May 06 j 04:49	14° <del>♂</del> 19'48	20.38670 AU
retrograde	255 Jul 22 j 01:19	15° <del>♂</del> 06'03			263 May 17 j 16:33	15° <del>♂</del>	
opposition	255 Oct 07 j 01:00	13° <del>♂</del> 05'45	0°-38'-28	retrograde	263 Aug 25 j 06:22	18° <del>♂</del> 31'42	
min. Earth dist.	255 Oct 06 j 14:25	13° <del>♂</del> 06'51	18.80672 AU	opposition	263 Nov 09 j 00:40	16° <del>♂</del> 30'08	0°-15'-43
direct	255 Dec 20 j 15:08	11° <del>♂</del> 08'10		min. Earth dist.	263 Nov 09 j 03:43	16° <del>♂</del> 29'49	18.35517 AU
conjunction	256 Apr 05 j 05:25	15° <del>♂</del> 05'43	0°-33'-49		263 Dec 19 j 02:56	15° <del>♂</del>	
minimum elong	256 Apr 05 j 05:25	15° <del>♂</del> 05'43	0°33'49	direct	264 Jan 22 j 15:02	14° <del>♂</del> 29'42	
max. Earth dist.	256 Apr 05 j 17:15	15° <del>♂</del> 07'25	20.78428 AU		264 Feb 25 j 17:37	15° <del>♂</del>	
retrograde	256 Jul 25 j 13:14	19° <del>♂</del> 12'19		conjunction	264 May 10 j 00:56	18° <del>♂</del> 36'37	0°-12'-40
opposition	256 Oct 10 j 08:48	17° <del>♂</del> 11'55	0°-36'-14	minimum elong	264 May 10 j 00:56	18° <del>♂</del> 36'37	0°12'41
min. Earth dist.	256 Oct 09 j 23:19	17° <del>♂</del> 12'54	18.76086 AU	behind sun begin	264 May 09 j 20:46	18° <del>♂</del> 36'01	
direct	256 Dec 23 j 23:40	15° <del>♂</del> 14'04		behind sun end	264 May 10 j 05:05	18° <del>♂</del> 37'12	
conjunction	257 Apr 09 j 17:15	19° <del>♂</del> 12'35	0°-31'-42	max. Earth dist.	264 May 09 j 21:06	18° <del>♂</del> 36'04	20.32387 AU
minimum elong	257 Apr 09 j 17:15	19° <del>♂</del> 12'35	0°31'43	retrograde	264 Aug 28 j 23:01	22° <del>♂</del> 48'54	
max. Earth dist.	257 Apr 10 j 01:50	19° <del>♂</del> 13'49	20.73630 AU	opposition	264 Nov 12 j 11:35	20° <del>♂</del> 47'13	0°-12'-14
retrograde	257 Jul 29 j 23:55	23° <del>♂</del> 19'50		min. Earth dist.	264 Nov 12 j 15:14	20° <del>♂</del> 46'50	18.29216 AU
opposition	257 Oct 14 j 16:55	21° <del>♂</del> 19'16	0°-33'-49	direct	265 Jan 26 j 03:30	18° <del>♂</del> 46'26	
min. Earth dist.	257 Oct 14 j 09:58	21° <del>♂</del> 20'00	18.71079 AU	conjunction	265 May 14 j 18:48	22° <del>♂</del> 54'47	0°-9'-29
direct	257 Dec 28 j 06:28	19° <del>♂</del> 21'07		minimum elong	265 May 14 j 18:48	22° <del>♂</del> 54'47	0°09'30
				behind sun begin	265 May 14 j 13:13	22° <del>♂</del> 53'59	

behind sun end	265 May 15 j 00:23	22°♄55'35		opposition	271 Dec 13 j 11:26	21°♄40'52	0°13'43
max. Earth dist.	265 May 14 j 12:22	22°♄53'52	20.26079 AU	min. Earth dist.	271 Dec 14 j 03:43	21°♄39'06	17.84960 AU
retrograde	265 Sep 02 j 13:55	27°♄07'54		direct	272 Feb 26 j 09:52	19°♄37'34	
opposition	265 Nov 16 j 23:17	25°♄06'10	0°-8'-40	max. Earth dist.	272 Jun 15 j 05:09	23°♄53'32	19.81861 AU
min. Earth dist.	265 Nov 17 j 05:25	25°♄05'31	18.22915 AU				
direct	266 Jan 30 j 14:39	23°♄05'02		conjunction	272 Jun 16 j 01:30	23°♄56'36	0°14'02
				minimum elong	272 Jun 16 j 01:29	23°♄56'36	0°14'01
conjunction	266 May 19 j 13:44	27°♄14'53	0°-6'-14	behind sun begin	272 Jun 15 j 22:18	23°♄56'08	
minimum elong	266 May 19 j 13:44	27°♄14'53	0°06'15	behind sun end	272 Jun 16 j 04:41	23°♄57'05	
behind sun begin	266 May 19 j 07:20	27°♄13'58		retrograde	272 Oct 04 j 00:07	28°♄15'10	
behind sun end	266 May 19 j 20:08	27°♄15'48		opposition	272 Dec 17 j 03:53	26°♄12'57	0°17'23
max. Earth dist.	266 May 19 j 06:06	27°♄13'47	20.19787 AU	min. Earth dist.	272 Dec 17 j 20:43	26°♄11'08	17.78795 AU
	266 Jul 08 j 23:35	0°♄		direct	273 Mar 02 j 05:21	24°♄09'15	
retrograde	266 Sep 07 j 07:48	1°♄28'50		max. Earth dist.	273 Jun 20 j 04:30	28°♄26'29	19.75775 AU
	266 Nov 08 j 10:53	30°♄					
opposition	266 Nov 21 j 11:22	29°♄27'03	0°-5'00	conjunction	273 Jun 21 j 01:50	28°♄29'43	0°17'16
min. Earth dist.	266 Nov 21 j 18:11	29°♄26'19	18.16620 AU	minimum elong	273 Jun 21 j 01:50	28°♄29'43	0°17'17
direct	267 Feb 04 j 04:16	27°♄25'36			273 Jul 16 j 07:42	0°♄	
	267 Apr 26 j 11:37	0°♄		retrograde	273 Oct 08 j 19:37	2°♄48'55	
				opposition	273 Dec 21 j 21:08	0°♄46'36	0°20'57
conjunction	267 May 24 j 09:33	1°♄36'59	0°-2'-55	min. Earth dist.	273 Dec 22 j 15:57	0°♄44'34	17.72828 AU
minimum elong	267 May 24 j 09:33	1°♄36'59	0°02'56		274 Jan 09 j 04:58	30°♄	
behind sun begin	267 May 24 j 02:47	1°♄36'01		direct	274 Mar 07 j 00:17	28°♄42'30	
behind sun end	267 May 24 j 16:18	1°♄37'58			274 May 01 j 10:01	0°♄	
max. Earth dist.	267 May 23 j 23:21	1°♄35'30	20.13483 AU	max. Earth dist.	274 Jun 25 j 03:23	3°♄00'48	19.69943 AU
retrograde	267 Sep 12 j 00:31	5°♄51'47					
opposition	267 Nov 26 j 00:26	3°♄49'57	0°-1'-17	conjunction	274 Jun 26 j 02:44	3°♄04'22	0°20'26
min. Earth dist.	267 Nov 26 j 10:00	3°♄48'56	18.10311 AU	minimum elong	274 Jun 26 j 02:44	3°♄04'22	0°20'25
direct	268 Feb 08 j 17:15	1°♄48'10		retrograde	274 Oct 13 j 16:16	7°♄24'09	
asc. node	268 Apr 03 j 01:01	3°♄02'25		opposition	274 Dec 26 j 14:48	5°♄21'44	0°24'25
				min. Earth dist.	274 Dec 27 j 10:01	5°♄19'38	17.67152 AU
conjunction	268 May 28 j 06:24	6°♄01'07	0°00'32	direct	275 Mar 11 j 21:44	3°♄17'13	
minimum elong	268 May 28 j 06:23	6°♄01'07	0°00'33	max. Earth dist.	275 Jun 30 j 04:41	7°♄36'50	19.64419 AU
behind sun begin	268 May 27 j 23:38	6°♄00'08					
behind sun end	268 May 28 j 13:09	6°♄02'06		conjunction	275 Jul 01 j 04:19	7°♄40'26	0°23'28
max. Earth dist.	268 May 27 j 18:27	5°♄59'21	20.07163 AU	minimum elong	275 Jul 01 j 04:19	7°♄40'26	0°23'28
retrograde	268 Sep 15 j 19:31	10°♄16'44		retrograde	275 Oct 18 j 12:41	12°♄00'46	
opposition	268 Nov 29 j 13:58	8°♄14'52	0°02'27	opposition	275 Dec 31 j 09:23	9°♄58'17	0°27'44
min. Earth dist.	268 Nov 30 j 00:21	8°♄13'45	18.03975 AU	min. Earth dist.	276 Jan 01 j 06:04	9°♄56'02	17.61816 AU
direct	269 Feb 12 j 08:39	6°♄12'44		direct	276 Mar 15 j 18:14	7°♄53'25	
				max. Earth dist.	276 Jul 04 j 04:37	12°♄13'59	19.59284 AU
conjunction	269 Jun 02 j 04:03	10°♄27'15	0°03'58				
minimum elong	269 Jun 02 j 04:02	10°♄27'15	0°03'58	conjunction	276 Jul 05 j 06:06	12°♄17'53	0°26'22
behind sun begin	269 Jun 01 j 21:20	10°♄26'16		minimum elong	276 Jul 05 j 06:06	12°♄17'53	0°26'22
behind sun end	269 Jun 02 j 10:44	10°♄28'13		retrograde	276 Oct 22 j 10:33	16°♄38'43	
max. Earth dist.	269 Jun 01 j 13:42	10°♄25'07	20.00803 AU	opposition	277 Jan 04 j 04:33	14°♄36'11	0°30'53
retrograde	269 Sep 20 j 13:30	14°♄43'39		min. Earth dist.	277 Jan 05 j 01:26	14°♄33'54	17.56909 AU
opposition	269 Dec 04 j 04:32	12°♄41'43	0°06'13	direct	277 Mar 20 j 17:00	12°♄30'59	
min. Earth dist.	269 Dec 04 j 17:35	12°♄40'19	17.97615 AU	max. Earth dist.	277 Jul 09 j 07:28	16°♄52'50	19.54598 AU
direct	270 Feb 16 j 23:27	10°♄39'13					
max. Earth dist.	270 Jun 06 j 10:02	14°♄52'49	19.94445 AU	conjunction	277 Jul 10 j 08:29	16°♄56'41	0°29'06
				minimum elong	277 Jul 10 j 08:29	16°♄56'41	0°29'06
conjunction	270 Jun 07 j 02:22	14°♄55'16	0°07'21	retrograde	277 Oct 27 j 08:32	21°♄17'58	
minimum elong	270 Jun 07 j 02:21	14°♄55'16	0°07'21	opposition	278 Jan 09 j 00:29	19°♄15'25	0°33'50
behind sun begin	270 Jun 06 j 20:10	14°♄54'21		min. Earth dist.	278 Jan 09 j 22:10	19°♄13'03	17.52471 AU
behind sun end	270 Jun 07 j 08:32	14°♄56'10		direct	278 Mar 25 j 14:50	17°♄09'58	
retrograde	270 Sep 25 j 09:20	19°♄12'26		max. Earth dist.	278 Jul 14 j 08:22	21°♄32'40	19.50415 AU
opposition	270 Dec 08 j 19:37	17°♄10'25	0°09'59				
min. Earth dist.	270 Dec 09 j 09:24	17°♄08'56	17.91261 AU	conjunction	278 Jul 15 j 11:01	21°♄36'46	0°31'40
direct	271 Feb 21 j 16:58	15°♄07'31		minimum elong	278 Jul 15 j 11:01	21°♄36'46	0°31'40
max. Earth dist.	271 Jun 11 j 07:25	19°♄22'21	19.88101 AU	retrograde	278 Nov 01 j 07:30	25°♄58'29	
				opposition	279 Jan 13 j 21:04	23°♄55'58	0°36'36
conjunction	271 Jun 12 j 01:38	19°♄25'05	0°10'43	min. Earth dist.	279 Jan 14 j 19:01	23°♄53'34	17.48548 AU
minimum elong	271 Jun 12 j 01:37	19°♄25'05	0°10'43	direct	279 Mar 30 j 13:51	21°♄50'17	
behind sun begin	271 Jun 11 j 20:29	19°♄24'20					
behind sun end	271 Jun 12 j 06:46	19°♄25'50		conjunction	279 Jul 20 j 14:11	26°♄18'10	0°34'01
retrograde	271 Sep 30 j 04:03	23°♄42'58		minimum elong	279 Jul 20 j 14:11	26°♄18'10	0°34'01

max. Earth dist.	279 Jul 19 j 12:18	26° $\Omega$ 14'10	19.46738 AU		287 May 30 j 13:21	0° $\Upsilon$	
	279 Sep 28 j 22:08	0° $\Omega$					
retrograde	279 Nov 06 j 07:09	0° $\Omega$ 40'14		conjunction	287 Aug 28 j 17:00	4° $\Upsilon$ 18'31	0°43'49
	279 Dec 15 j 08:45	30° $\Upsilon$		minimum elong	287 Aug 28 j 17:00	4° $\Upsilon$ 18'31	0°43'49
opposition	280 Jan 18 j 18:19	28° $\Upsilon$ 37'47	0°39'07	max. Earth dist.	287 Aug 27 j 15:41	4° $\Upsilon$ 14'32	19.33914 AU
min. Earth dist.	280 Jan 19 j 16:40	28° $\Upsilon$ 35'20	17.45118 AU	retrograde	287 Dec 14 j 04:55	8° $\Upsilon$ 40'54	
direct	280 Apr 03 j 13:17	26° $\Upsilon$ 31'57		opposition	288 Feb 25 j 16:40	6° $\Upsilon$ 38'54	0°48'52
	280 Jul 08 j 07:19	0° $\Omega$		min. Earth dist.	288 Feb 26 j 13:47	6° $\Upsilon$ 36'37	17.34153 AU
				direct	288 May 12 j 08:59	4° $\Upsilon$ 32'32	
conjunction	280 Jul 24 j 17:27	1° $\Omega$ 00'47	0°36'10				
minimum elong	280 Jul 24 j 17:27	1° $\Omega$ 00'47	0°36'11	conjunction	288 Sep 01 j 19:14	9° $\Upsilon$ 04'08	0°43'44
max. Earth dist.	280 Jul 23 j 14:11	0° $\Omega$ 56'33	19.43559 AU	minimum elong	288 Sep 01 j 19:14	9° $\Upsilon$ 04'08	0°43'45
retrograde	280 Nov 10 j 06:31	5° $\Omega$ 23'10		max. Earth dist.	288 Aug 31 j 19:35	9° $\Upsilon$ 00'24	19.34445 AU
opposition	281 Jan 22 j 16:21	3° $\Omega$ 20'47	0°41'24	retrograde	288 Dec 18 j 02:45	13° $\Upsilon$ 26'12	
min. Earth dist.	281 Jan 23 j 15:11	3° $\Omega$ 18'18	17.42192 AU	opposition	289 Mar 01 j 18:03	11° $\Upsilon$ 24'15	0°48'36
direct	281 Apr 08 j 12:42	1° $\Omega$ 14'49		min. Earth dist.	289 Mar 02 j 15:11	11° $\Upsilon$ 21'58	17.34971 AU
				direct	289 May 17 j 11:32	9° $\Upsilon$ 17'55	
conjunction	281 Jul 29 j 20:54	5° $\Omega$ 44'30	0°38'05				
minimum elong	281 Jul 29 j 20:54	5° $\Omega$ 44'30	0°38'05	conjunction	289 Sep 06 j 20:40	13° $\Upsilon$ 49'11	0°43'21
max. Earth dist.	281 Jul 28 j 18:31	5° $\Omega$ 40'23	19.40857 AU	minimum elong	289 Sep 06 j 20:40	13° $\Upsilon$ 49'11	0°43'21
retrograde	281 Nov 15 j 07:14	10° $\Omega$ 07'07		max. Earth dist.	289 Sep 05 j 21:47	13° $\Upsilon$ 45'35	19.35560 AU
opposition	282 Jan 27 j 14:59	8° $\Omega$ 04'49	0°43'24	retrograde	289 Dec 23 j 02:51	18° $\Upsilon$ 10'55	
min. Earth dist.	282 Jan 28 j 13:45	8° $\Omega$ 02'20	17.39712 AU	opposition	290 Mar 06 j 19:21	16° $\Upsilon$ 09'01	0°48'01
direct	282 Apr 13 j 14:18	5° $\Omega$ 58'45		min. Earth dist.	290 Mar 07 j 14:14	16° $\Upsilon$ 06'59	17.36377 AU
max. Earth dist.	282 Aug 02 j 21:05	10° $\Omega$ 24'51	19.38594 AU	direct	290 May 22 j 16:15	14° $\Upsilon$ 02'46	
conjunction	282 Aug 04 j 00:32	10° $\Omega$ 29'08	0°39'45	conjunction	290 Sep 11 j 21:47	18° $\Upsilon$ 33'37	0°42'41
minimum elong	282 Aug 04 j 00:32	10° $\Omega$ 29'08	0°39'44	minimum elong	290 Sep 11 j 21:47	18° $\Upsilon$ 33'37	0°42'40
retrograde	282 Nov 20 j 06:01	14° $\Omega$ 51'55		max. Earth dist.	290 Sep 11 j 01:20	18° $\Upsilon$ 30'24	19.37267 AU
opposition	283 Feb 01 j 14:09	12° $\Omega$ 49'42	0°45'07	retrograde	290 Dec 28 j 00:49	22° $\Upsilon$ 54'55	
min. Earth dist.	283 Feb 02 j 13:40	12° $\Omega$ 47'08	17.37677 AU	opposition	291 Mar 11 j 20:47	20° $\Upsilon$ 53'07	0°47'06
direct	283 Apr 18 j 14:50	10° $\Omega$ 43'31		min. Earth dist.	291 Mar 12 j 15:11	20° $\Upsilon$ 51'08	17.38390 AU
	283 Aug 05 j 07:48	15° $\Omega$		direct	291 May 27 j 18:20	18° $\Upsilon$ 47'02	
max. Earth dist.	283 Aug 08 j 01:32	15° $\Omega$ 10'18	19.36767 AU				
				conjunction	291 Sep 16 j 22:08	23° $\Upsilon$ 17'19	0°41'43
conjunction	283 Aug 09 j 04:19	15° $\Omega$ 14'30	0°41'09	minimum elong	291 Sep 16 j 22:08	23° $\Upsilon$ 17'19	0°41'43
minimum elong	283 Aug 09 j 04:19	15° $\Omega$ 14'30	0°41'09	max. Earth dist.	291 Sep 16 j 02:26	23° $\Upsilon$ 14'13	19.39601 AU
retrograde	283 Nov 25 j 07:03	19° $\Omega$ 37'20		retrograde	292 Jan 02 j 00:49	27° $\Upsilon$ 38'10	
opposition	284 Feb 06 j 13:55	17° $\Omega$ 35'11	0°46'31	opposition	292 Mar 15 j 22:14	25° $\Upsilon$ 36'30	0°45'52
min. Earth dist.	284 Feb 07 j 12:51	17° $\Omega$ 32'41	17.36056 AU	min. Earth dist.	292 Mar 16 j 14:08	25° $\Upsilon$ 34'47	17.41024 AU
direct	284 Apr 22 j 18:25	15° $\Omega$ 28'57		direct	292 May 31 j 21:40	23° $\Upsilon$ 30'38	
max. Earth dist.	284 Aug 12 j 04:41	19° $\Omega$ 56'04	19.35357 AU				
				conjunction	292 Sep 20 j 21:51	28° $\Upsilon$ 00'15	0°40'29
conjunction	284 Aug 13 j 07:49	20° $\Omega$ 00'19	0°42'16	minimum elong	292 Sep 20 j 21:51	28° $\Upsilon$ 00'15	0°40'28
minimum elong	284 Aug 13 j 07:48	20° $\Omega$ 00'19	0°42'15	max. Earth dist.	292 Sep 20 j 05:09	27° $\Upsilon$ 57'37	19.42534 AU
retrograde	284 Nov 29 j 05:27	24° $\Omega$ 23'11			292 Oct 23 j 17:30	0° $\Omega$	
opposition	285 Feb 10 j 14:15	22° $\Omega$ 21'04	0°47'36	retrograde	293 Jan 05 j 22:53	2° $\Omega$ 20'36	
min. Earth dist.	285 Feb 11 j 13:49	22° $\Omega$ 18'30	17.34875 AU	opposition	293 Mar 20 j 23:45	0° $\Omega$ 19'05	0°44'20
direct	285 Apr 27 j 20:11	20° $\Omega$ 14'45		min. Earth dist.	293 Mar 21 j 14:45	0° $\Omega$ 17'29	17.44233 AU
max. Earth dist.	285 Aug 17 j 08:44	24° $\Omega$ 42'16	19.34404 AU		293 Mar 28 j 10:38	30° $\Upsilon$	
				direct	293 Jun 05 j 23:28	28° $\Upsilon$ 13'31	
conjunction	285 Aug 18 j 11:12	24° $\Omega$ 46'25	0°43'05		293 Aug 10 j 16:57	0° $\Omega$	
minimum elong	285 Aug 18 j 11:12	24° $\Omega$ 46'25	0°43'05				
retrograde	285 Dec 04 j 06:20	29° $\Omega$ 09'11		conjunction	293 Sep 25 j 20:53	2° $\Omega$ 42'21	0°38'59
opposition	286 Feb 15 j 14:40	27° $\Omega$ 07'07	0°48'22	minimum elong	293 Sep 25 j 20:53	2° $\Omega$ 42'21	0°39'00
min. Earth dist.	286 Feb 16 j 13:04	27° $\Omega$ 04'41	17.34144 AU	max. Earth dist.	293 Sep 25 j 04:55	2° $\Omega$ 39'50	19.46025 AU
direct	286 May 03 j 01:03	25° $\Omega$ 00'46		retrograde	294 Jan 10 j 22:08	7° $\Omega$ 02'09	
				opposition	294 Mar 26 j 00:54	5° $\Omega$ 00'49	0°42'31
conjunction	286 Aug 23 j 14:21	29° $\Omega$ 32'33	0°43'36	min. Earth dist.	294 Mar 26 j 13:43	4° $\Omega$ 59'27	17.47973 AU
minimum elong	286 Aug 23 j 14:21	29° $\Omega$ 32'33	0°43'37	direct	294 Jun 11 j 01:56	2° $\Omega$ 55'33	
max. Earth dist.	286 Aug 22 j 12:24	29° $\Omega$ 28'29	19.33907 AU				
	286 Aug 30 j 20:59	0° $\Upsilon$		conjunction	294 Sep 30 j 19:26	7° $\Omega$ 23'30	0°37'14
retrograde	286 Dec 09 j 04:21	3° $\Upsilon$ 55'10		minimum elong	294 Sep 30 j 19:26	7° $\Omega$ 23'30	0°37'14
opposition	287 Feb 20 j 15:38	1° $\Upsilon$ 53'08	0°48'47	max. Earth dist.	294 Sep 30 j 06:24	7° $\Omega$ 21'28	19.50000 AU
min. Earth dist.	287 Feb 21 j 14:31	1° $\Upsilon$ 50'39	17.33894 AU	retrograde	295 Jan 15 j 19:45	11° $\Omega$ 42'43	
	287 Apr 15 j 14:11	30° $\Upsilon$		opposition	295 Mar 31 j 02:14	9° $\Omega$ 41'35	0°40'25
direct	287 May 08 j 03:23	29° $\Omega$ 46'45		min. Earth dist.	295 Mar 31 j 13:53	9° $\Omega$ 40'20	17.52152 AU

direct	295 Jun 16 j 04:13	7° <del>♂</del> 36'40		retrograde	303 Feb 21 j 05:44	18° <del>♂</del> 14'34	
				opposition	303 May 07 j 23:39	16° <del>♂</del> 14'17	0°16'07
conjunction	295 Oct 05 j 17:00	12° <del>♂</del> 03'36	0°35'14	min. Earth dist.	303 May 07 j 20:36	16° <del>♂</del> 14'36	17.95293 AU
minimum elong	295 Oct 05 j 17:00	12° <del>♂</del> 03'36	0°35'15		303 Jun 09 j 03:46	15° <del>♂</del> 14'36	
max. Earth dist.	295 Oct 05 j 04:45	12° <del>♂</del> 01'41	19.54385 AU	direct	303 Jul 24 j 07:25	14° <del>♂</del> 12'00	
retrograde	296 Jan 20 j 17:37	16° <del>♂</del> 22'11			303 Sep 05 j 18:56	15° <del>♂</del> 12'00	
opposition	296 Apr 04 j 03:21	14° <del>♂</del> 21'12	0°38'03				
min. Earth dist.	296 Apr 04 j 13:05	14° <del>♂</del> 20'10	17.56723 AU	conjunction	303 Nov 10 j 16:16	18° <del>♂</del> 27'59	0°12'55
direct	296 Jun 20 j 06:37	12° <del>♂</del> 16'37		minimum elong	303 Nov 10 j 16:16	18° <del>♂</del> 27'59	0°12'55
				behind sun begin	303 Nov 10 j 12:09	18° <del>♂</del> 27'22	
conjunction	296 Oct 09 j 14:02	16° <del>♂</del> 42'28	0°33'01	behind sun end	303 Nov 10 j 20:23	18° <del>♂</del> 28'36	
minimum elong	296 Oct 09 j 14:02	16° <del>♂</del> 42'28	0°33'02	max. Earth dist.	303 Nov 10 j 19:53	18° <del>♂</del> 28'31	19.98416 AU
max. Earth dist.	296 Oct 09 j 04:37	16° <del>♂</del> 41'00	19.59125 AU	retrograde	304 Feb 25 j 21:21	22° <del>♂</del> 40'14	
retrograde	297 Jan 24 j 13:55	21° <del>♂</del> 00'21		opposition	304 May 11 j 20:58	20° <del>♂</del> 40'02	0°12'31
opposition	297 Apr 09 j 04:10	18° <del>♂</del> 59'32	0°35'27	min. Earth dist.	304 May 11 j 16:41	20° <del>♂</del> 40'28	18.01561 AU
min. Earth dist.	297 Apr 09 j 12:21	18° <del>♂</del> 58'40	17.61606 AU	direct	304 Jul 28 j 02:25	18° <del>♂</del> 38'06	
direct	297 Jun 25 j 09:07	16° <del>♂</del> 55'19					
				conjunction	304 Nov 14 j 06:10	22° <del>♂</del> 52'34	0°09'40
conjunction	297 Oct 14 j 10:06	21° <del>♂</del> 19'56	0°30'36	minimum elong	304 Nov 14 j 06:10	22° <del>♂</del> 52'34	0°09'39
minimum elong	297 Oct 14 j 10:06	21° <del>♂</del> 19'56	0°30'35	behind sun begin	304 Nov 14 j 00:43	22° <del>♂</del> 51'45	
max. Earth dist.	297 Oct 14 j 01:31	21° <del>♂</del> 18'36	19.64149 AU	behind sun end	304 Nov 14 j 11:36	22° <del>♂</del> 53'23	
retrograde	298 Jan 29 j 10:15	25° <del>♂</del> 37'07		max. Earth dist.	304 Nov 14 j 11:56	22° <del>♂</del> 53'26	20.04783 AU
opposition	298 Apr 14 j 04:40	23° <del>♂</del> 36'25	0°32'38	retrograde	305 Mar 01 j 14:25	27° <del>♂</del> 03'59	
min. Earth dist.	298 Apr 14 j 11:19	23° <del>♂</del> 35'43	17.66756 AU	opposition	305 May 16 j 17:16	25° <del>♂</del> 03'54	0°08'52
direct	298 Jun 30 j 10:10	21° <del>♂</del> 32'32		min. Earth dist.	305 May 16 j 09:55	25° <del>♂</del> 04'39	18.08009 AU
				direct	305 Aug 01 j 23:16	23° <del>♂</del> 02'22	
conjunction	298 Oct 19 j 05:29	25° <del>♂</del> 55'52	0°27'59				
minimum elong	298 Oct 19 j 05:29	25° <del>♂</del> 55'52	0°27'59	conjunction	305 Nov 18 j 19:14	27° <del>♂</del> 15'21	0°06'23
max. Earth dist.	298 Oct 18 j 23:26	25° <del>♂</del> 54'56	19.69409 AU	minimum elong	305 Nov 18 j 19:14	27° <del>♂</del> 15'21	0°06'24
	299 Jan 13 j 01:05	0° <del>♂</del>		behind sun begin	305 Nov 18 j 13:03	27° <del>♂</del> 14'26	
retrograde	299 Feb 03 j 05:28	0° <del>♂</del> 12'16		behind sun end	305 Nov 19 j 01:25	27° <del>♂</del> 16'16	
	299 Feb 24 j 18:56	30° <del>♂</del> 12'16		max. Earth dist.	305 Nov 19 j 03:12	27° <del>♂</del> 16'32	20.11303 AU
opposition	299 Apr 19 j 04:43	28° <del>♂</del> 11'42	0°29'37		306 Jan 06 j 18:16	0° <del>♂</del>	
min. Earth dist.	299 Apr 19 j 09:23	28° <del>♂</del> 11'13	17.72102 AU	retrograde	306 Mar 06 j 05:12	1° <del>♂</del> 25'59	
direct	299 Jul 05 j 11:55	26° <del>♂</del> 08'09			306 May 07 j 12:53	30° <del>♂</del> 12'53	
	299 Oct 15 j 21:58	0° <del>♂</del>		opposition	306 May 21 j 13:10	29° <del>♂</del> 26'02	0°05'11
				min. Earth dist.	306 May 21 j 04:51	29° <del>♂</del> 26'53	18.14597 AU
conjunction	299 Oct 23 j 23:54	0° <del>♂</del> 30'07	0°25'13	direct	306 Aug 06 j 16:26	27° <del>♂</del> 24'55	
minimum elong	299 Oct 23 j 23:55	0° <del>♂</del> 30'07	0°25'12		306 Oct 27 j 04:50	0° <del>♂</del>	
max. Earth dist.	299 Oct 23 j 19:00	0° <del>♂</del> 29'21	19.74858 AU				
retrograde	300 Feb 08 j 00:12	4° <del>♂</del> 45'43		conjunction	306 Nov 23 j 07:27	1° <del>♂</del> 36'25	0°03'05
opposition	300 Apr 23 j 04:27	2° <del>♂</del> 45'14	0°26'26	minimum elong	306 Nov 23 j 07:26	1° <del>♂</del> 36'25	0°03'04
min. Earth dist.	300 Apr 23 j 07:48	2° <del>♂</del> 44'53	17.77646 AU	behind sun begin	306 Nov 23 j 00:55	1° <del>♂</del> 35'27	
direct	300 Jul 09 j 11:02	0° <del>♂</del> 42'00		behind sun end	306 Nov 23 j 13:57	1° <del>♂</del> 37'23	
				max. Earth dist.	306 Nov 23 j 17:11	1° <del>♂</del> 37'53	20.17941 AU
conjunction	300 Oct 27 j 17:23	5° <del>♂</del> 02'32	0°22'17	retrograde	307 Mar 10 j 21:20	5° <del>♂</del> 46'18	
minimum elong	300 Oct 27 j 17:23	5° <del>♂</del> 02'32	0°22'17	opposition	307 May 26 j 08:16	3° <del>♂</del> 46'31	0°01'31
max. Earth dist.	300 Oct 27 j 14:57	5° <del>♂</del> 02'09	19.80491 AU	min. Earth dist.	307 May 25 j 21:00	3° <del>♂</del> 47'40	18.21257 AU
retrograde	301 Feb 11 j 18:50	9° <del>♂</del> 17'18		direct	307 Aug 11 j 11:35	1° <del>♂</del> 45'50	
opposition	301 Apr 28 j 03:28	7° <del>♂</del> 16'54	0°23'07	desc. node	307 Oct 25 j 07:30	3° <del>♂</del> 58'52	
min. Earth dist.	301 Apr 28 j 04:24	7° <del>♂</del> 16'48	17.83348 AU				
direct	301 Jul 14 j 11:28	5° <del>♂</del> 13'59		conjunction	307 Nov 27 j 19:01	5° <del>♂</del> 55'53	0°00'-18
				minimum elong	307 Nov 27 j 19:02	5° <del>♂</del> 55'53	0°00'19
conjunction	301 Nov 01 j 09:58	9° <del>♂</del> 33'01	0°19'15	behind sun begin	307 Nov 27 j 12:31	5° <del>♂</del> 54'56	
minimum elong	301 Nov 01 j 09:58	9° <del>♂</del> 33'00	0°19'15	behind sun end	307 Nov 28 j 01:32	5° <del>♂</del> 56'51	
max. Earth dist.	301 Nov 01 j 09:05	9° <del>♂</del> 32'53	19.86279 AU	max. Earth dist.	307 Nov 28 j 07:01	5° <del>♂</del> 57'41	20.24610 AU
retrograde	302 Feb 16 j 11:49	13° <del>♂</del> 46'56		retrograde	308 Mar 14 j 11:40	10° <del>♂</del> 05'03	
opposition	302 May 03 j 01:51	11° <del>♂</del> 46'35	0°19'40	opposition	308 May 30 j 02:55	8° <del>♂</del> 05'25	0°-2'-8
min. Earth dist.	302 May 03 j 01:41	11° <del>♂</del> 46'36	17.89230 AU	min. Earth dist.	308 May 29 j 14:58	8° <del>♂</del> 06'38	18.27929 AU
direct	302 Jul 19 j 08:25	9° <del>♂</del> 43'58		direct	308 Aug 15 j 03:25	6° <del>♂</del> 05'10	
conjunction	302 Nov 06 j 01:39	14° <del>♂</del> 01'30	0°16'07	conjunction	308 Dec 01 j 05:52	10° <del>♂</del> 13'47	0°-3'-39
minimum elong	302 Nov 06 j 01:39	14° <del>♂</del> 01'30	0°16'06	minimum elong	308 Dec 01 j 05:51	10° <del>♂</del> 13'47	0°03'40
behind sun begin	302 Nov 06 j 00:47	14° <del>♂</del> 01'22		behind sun begin	308 Nov 30 j 23:22	10° <del>♂</del> 12'50	
behind sun end	302 Nov 06 j 02:31	14° <del>♂</del> 01'38		behind sun end	308 Dec 01 j 12:20	10° <del>♂</del> 14'44	
max. Earth dist.	302 Nov 06 j 03:08	14° <del>♂</del> 01'43	19.92257 AU	max. Earth dist.	308 Dec 01 j 19:07	10° <del>♂</del> 15'47	20.31258 AU
	302 Nov 22 j 00:18	15° <del>♂</del>		retrograde	309 Mar 19 j 02:47	14° <del>♂</del> 22'14	



opposition	309 Jun 03 j 20:43	12° $\nearrow$ 22'46	0°-5'-46	min. Earth dist.	316 Jul 03 j 10:00	11° $\curvearrowright$ 43'56	18.73801 AU
min. Earth dist.	309 Jun 03 j 06:11	12° $\nearrow$ 24'14	18.34527 AU	opposition	316 Jul 04 j 07:05	11° $\curvearrowright$ 41'49	0°-28'-43
direct	309 Aug 19 j 20:51	10° $\nearrow$ 22'56		direct	316 Sep 18 j 19:56	9° $\curvearrowright$ 44'01	
conjunction	309 Dec 05 j 16:11	14° $\nearrow$ 30'11	0°-6'-53	conjunction	317 Jan 03 j 00:43	13° $\curvearrowright$ 42'38	0°-27'-12
minimum elong	309 Dec 05 j 16:11	14° $\nearrow$ 30'11	0°06'55	minimum elong	317 Jan 03 j 00:42	13° $\curvearrowright$ 42'38	0°27'13
behind sun begin	309 Dec 05 j 10:06	14° $\nearrow$ 29'18		max. Earth dist.	317 Jan 03 j 22:47	13° $\curvearrowright$ 45'52	20.76043 AU
behind sun end	309 Dec 05 j 22:16	14° $\nearrow$ 31'05		retrograde	317 Apr 22 j 00:19	17° $\curvearrowright$ 46'17	
max. Earth dist.	309 Dec 06 j 07:28	14° $\nearrow$ 32'28	20.37779 AU	opposition	317 Jul 08 j 19:27	15° $\curvearrowright$ 47'07	0°-31'-26
retrograde	310 Mar 23 j 15:53	18° $\nearrow$ 37'57		min. Earth dist.	317 Jul 07 j 20:48	15° $\curvearrowright$ 49'23	18.78265 AU
opposition	310 Jun 08 j 13:58	16° $\nearrow$ 38'37	0°-9'-21	direct	317 Sep 23 j 06:17	13° $\curvearrowright$ 49'29	
min. Earth dist.	310 Jun 07 j 23:07	16° $\nearrow$ 40'07	18.40973 AU				
direct	310 Aug 24 j 12:03	14° $\nearrow$ 39'12		conjunction	318 Jan 07 j 06:52	17° $\curvearrowright$ 47'08	0°-29'-35
				minimum elong	318 Jan 07 j 06:52	17° $\curvearrowright$ 47'08	0°29'36
conjunction	310 Dec 10 j 01:54	18° $\nearrow$ 45'05	0°-10'-4	max. Earth dist.	318 Jan 08 j 06:49	17° $\curvearrowright$ 50'38	20.80369 AU
minimum elong	310 Dec 10 j 01:54	18° $\nearrow$ 45'05	0°10'05	retrograde	318 Apr 26 j 08:13	21° $\curvearrowright$ 50'21	
behind sun begin	310 Dec 09 j 20:36	18° $\nearrow$ 44'18		min. Earth dist.	318 Jul 12 j 08:19	19° $\curvearrowright$ 53'28	18.82474 AU
behind sun end	310 Dec 10 j 07:11	18° $\nearrow$ 45'51		opposition	318 Jul 13 j 07:13	19° $\curvearrowright$ 51'11	0°-33'-59
max. Earth dist.	310 Dec 10 j 17:54	18° $\nearrow$ 47'28	20.44129 AU	direct	318 Sep 27 j 15:43	17° $\curvearrowright$ 53'46	
retrograde	311 Mar 28 j 06:00	22° $\nearrow$ 52'12					
opposition	311 Jun 13 j 06:33	20° $\nearrow$ 52'58	0°-12'-52	conjunction	319 Jan 11 j 12:40	21° $\curvearrowright$ 50'30	0°-31'-48
min. Earth dist.	311 Jun 12 j 13:26	20° $\nearrow$ 54'42	18.47209 AU	minimum elong	319 Jan 11 j 12:40	21° $\curvearrowright$ 50'30	0°31'50
direct	311 Aug 29 j 03:39	18° $\nearrow$ 53'55		max. Earth dist.	319 Jan 12 j 12:38	21° $\curvearrowright$ 53'59	20.84463 AU
				retrograde	319 Apr 30 j 18:51	25° $\curvearrowright$ 53'21	
conjunction	311 Dec 14 j 11:02	22° $\nearrow$ 58'29	0°-13'-11	opposition	319 Jul 17 j 18:27	23° $\curvearrowright$ 54'11	0°-36'-21
minimum elong	311 Dec 14 j 11:02	22° $\nearrow$ 58'29	0°13'13	min. Earth dist.	319 Jul 16 j 18:14	23° $\curvearrowright$ 56'36	18.86448 AU
behind sun begin	311 Dec 14 j 07:05	22° $\nearrow$ 57'55		direct	319 Oct 02 j 00:13	21° $\curvearrowright$ 56'57	
behind sun end	311 Dec 14 j 14:59	22° $\nearrow$ 59'03					
max. Earth dist.	311 Dec 15 j 04:53	23° $\nearrow$ 01'08	20.50221 AU	conjunction	320 Jan 15 j 18:17	25° $\curvearrowright$ 52'53	0°-33'-52
retrograde	312 Mar 31 j 17:43	27° $\nearrow$ 04'58		minimum elong	320 Jan 15 j 18:17	25° $\curvearrowright$ 52'53	0°33'53
opposition	312 Jun 16 j 22:37	25° $\nearrow$ 05'49	0°-16'-17	max. Earth dist.	320 Jan 16 j 19:57	25° $\curvearrowright$ 56'37	20.88291 AU
min. Earth dist.	312 Jun 16 j 05:22	25° $\nearrow$ 07'33	18.53163 AU	retrograde	320 May 04 j 03:00	29° $\curvearrowright$ 55'26	
direct	312 Sep 01 j 18:03	23° $\nearrow$ 07'06		min. Earth dist.	320 Jul 20 j 04:52	27° $\curvearrowright$ 58'43	18.90133 AU
				opposition	320 Jul 21 j 05:11	27° $\curvearrowright$ 56'17	0°-38'-31
conjunction	312 Dec 17 j 19:41	27° $\nearrow$ 10'23	0°-16'-14	direct	320 Oct 05 j 08:38	25° $\curvearrowright$ 59'17	
minimum elong	312 Dec 17 j 19:41	27° $\nearrow$ 10'23	0°16'14				
behind sun begin	312 Dec 17 j 19:12	27° $\nearrow$ 10'19		conjunction	321 Jan 18 j 23:42	29° $\curvearrowright$ 54'29	0°-35'-45
behind sun end	312 Dec 17 j 20:11	27° $\nearrow$ 10'27		minimum elong	321 Jan 18 j 23:42	29° $\curvearrowright$ 54'29	0°35'46
max. Earth dist.	312 Dec 18 j 13:48	27° $\nearrow$ 13'04	20.56021 AU	max. Earth dist.	321 Jan 20 j 00:59	29° $\curvearrowright$ 58'09	20.91827 AU
	313 Feb 08 j 05:00	0° $\curvearrowright$			321 Jan 20 j 13:45	0° $\approx$	
retrograde	313 Apr 05 j 06:30	1° $\curvearrowright$ 16'14		retrograde	321 May 08 j 13:01	3° $\approx$ 56'46	
	313 Jun 03 j 09:38	30° $\curvearrowright$ 17'		opposition	321 Jul 25 j 15:13	1° $\approx$ 57'40	0°-40'-30
opposition	313 Jun 21 j 13:38	29° $\nearrow$ 17'08	0°-19'-36	min. Earth dist.	321 Jul 24 j 14:09	2° $\approx$ 00'10	18.93510 AU
min. Earth dist.	313 Jun 20 j 18:32	29° $\nearrow$ 19'03	18.58802 AU	direct	321 Oct 09 j 15:44	0° $\approx$ 00'50	
direct	313 Sep 06 j 07:57	27° $\nearrow$ 18'41					
	313 Nov 29 j 01:11	0° $\curvearrowright$		conjunction	322 Jan 23 j 05:07	3° $\approx$ 55'26	0°-37'-28
				minimum elong	322 Jan 23 j 05:07	3° $\approx$ 55'26	0°37'29
conjunction	313 Dec 22 j 03:50	1° $\curvearrowright$ 20'45	0°-19'-10	max. Earth dist.	322 Jan 24 j 07:45	3° $\approx$ 59'17	20.95020 AU
minimum elong	313 Dec 22 j 03:50	1° $\curvearrowright$ 20'45	0°19'11	retrograde	322 May 12 j 21:16	7° $\approx$ 57'31	
max. Earth dist.	313 Dec 22 j 23:36	1° $\curvearrowright$ 23'40	20.61482 AU	min. Earth dist.	322 Jul 29 j 00:06	6° $\approx$ 00'57	18.96517 AU
retrograde	314 Apr 09 j 16:39	5° $\curvearrowright$ 25'59		opposition	322 Jul 30 j 01:02	5° $\approx$ 58'28	0°-42'-17
min. Earth dist.	314 Jun 25 j 09:04	3° $\curvearrowright$ 28'50	18.64100 AU	direct	322 Oct 13 j 23:15	4° $\approx$ 01'50	
opposition	314 Jun 26 j 04:13	3° $\curvearrowright$ 26'54	0°-22'-47				
direct	314 Sep 10 j 20:44	1° $\curvearrowright$ 28'43		conjunction	323 Jan 27 j 10:15	7° $\approx$ 55'52	0°-38'-59
				minimum elong	323 Jan 27 j 10:15	7° $\approx$ 55'52	0°39'00
conjunction	314 Dec 26 j 11:12	5° $\curvearrowright$ 29'33	0°-21'-58	max. Earth dist.	323 Jan 28 j 12:10	7° $\approx$ 59'37	20.97835 AU
minimum elong	314 Dec 26 j 11:12	5° $\curvearrowright$ 29'33	0°21'59	retrograde	323 May 17 j 07:05	11° $\approx$ 57'51	
max. Earth dist.	314 Dec 27 j 07:12	5° $\curvearrowright$ 32'30	20.66624 AU	min. Earth dist.	323 Aug 02 j 09:14	10° $\approx$ 01'20	18.99125 AU
retrograde	315 Apr 14 j 04:28	9° $\curvearrowright$ 34'14		opposition	323 Aug 03 j 10:28	9° $\approx$ 58'48	0°-43'-51
opposition	315 Jun 30 j 18:01	7° $\curvearrowright$ 35'07	0°-25'-49	direct	323 Oct 18 j 05:46	8° $\approx$ 02'20	
min. Earth dist.	315 Jun 29 j 21:07	7° $\curvearrowright$ 37'12	18.69092 AU				
direct	315 Sep 15 j 09:03	5° $\curvearrowright$ 37'07		conjunction	324 Jan 31 j 15:44	11° $\approx$ 55'56	0°-40'-19
				minimum elong	324 Jan 31 j 15:44	11° $\approx$ 55'56	0°40'20
conjunction	315 Dec 30 j 18:14	9° $\curvearrowright$ 36'49	0°-24'-39	max. Earth dist.	324 Feb 01 j 18:33	11° $\approx$ 59'48	21.00205 AU
minimum elong	315 Dec 30 j 18:14	9° $\curvearrowright$ 36'49	0°24'40		324 Apr 01 j 03:21	15° $\approx$	
max. Earth dist.	315 Dec 31 j 16:08	9° $\curvearrowright$ 40'02	20.71461 AU	retrograde	324 May 20 j 15:11	15° $\approx$ 57'49	
retrograde	316 Apr 17 j 13:06	13° $\curvearrowright$ 40'57			324 Jul 10 j 23:51	15° $\curvearrowright$	

opposition	324 Aug 06 j 19:22	13° <del>58</del> '48	0°-45'-13	retrograde	332 Jun 22 j 12:40	17° <del>51</del> '26	
min. Earth dist.	324 Aug 05 j 18:40	14° <del>01</del> '16	19.01257 AU	opposition	332 Sep 08 j 08:17	15° <del>51</del> '38	0°-47'-48
direct	324 Oct 21 j 12:10	12° <del>02</del> '28		min. Earth dist.	332 Sep 07 j 12:24	15° <del>53</del> '39	19.00442 AU
	325 Jan 18 j 14:51	15° <del></del>		direct	332 Nov 22 j 08:50	13° <del>55</del> '00	
conjunction	325 Feb 03 j 21:10	15° <del>55</del> '41	0°-41'-27	conjunction	333 Mar 07 j 21:40	17° <del>48</del> '04	0°-42'-58
minimum elong	325 Feb 03 j 21:10	15° <del>55</del> '41	0°41'27	minimum elong	333 Mar 07 j 21:40	17° <del>48</del> '04	0°42'59
max. Earth dist.	325 Feb 04 j 22:40	15° <del>59</del> '21	21.02088 AU	max. Earth dist.	333 Mar 08 j 18:23	17° <del>51</del> '01	20.99507 AU
retrograde	325 May 25 j 00:50	19° <del>57</del> '33		retrograde	333 Jun 26 j 21:53	21° <del>51</del> '08	
min. Earth dist.	325 Aug 10 j 03:36	18° <del>00</del> '57	19.02879 AU	opposition	333 Sep 12 j 15:08	19° <del>51</del> '14	0°-47'-5
opposition	325 Aug 11 j 04:03	17° <del>58</del> '30	0°-46'-21	min. Earth dist.	333 Sep 11 j 20:16	19° <del>53</del> '09	18.98564 AU
direct	325 Oct 25 j 18:27	16° <del>02</del> '14		direct	333 Nov 26 j 13:01	17° <del>54</del> '29	
conjunction	326 Feb 08 j 02:42	19° <del>55</del> '10	0°-42'-23	conjunction	334 Mar 12 j 05:01	21° <del>47</del> '57	0°-42'-13
minimum elong	326 Feb 08 j 02:42	19° <del>55</del> '10	0°42'24	minimum elong	334 Mar 12 j 05:01	21° <del>47</del> '57	0°42'13
max. Earth dist.	326 Feb 09 j 04:46	19° <del>58</del> '55	21.03426 AU	max. Earth dist.	334 Mar 13 j 01:56	21° <del>50</del> '56	20.97460 AU
retrograde	326 May 29 j 08:46	23° <del>57</del> '02		retrograde	334 Jul 01 j 06:58	25° <del>51</del> '24	
opposition	326 Aug 15 j 12:26	21° <del>57</del> '56	0°-47'-15	opposition	334 Sep 16 j 22:00	23° <del>51</del> '26	0°-46'-9
min. Earth dist.	326 Aug 14 j 12:38	22° <del>00</del> '19	19.03938 AU	min. Earth dist.	334 Sep 16 j 03:47	23° <del>53</del> '17	18.96341 AU
direct	326 Oct 30 j 00:08	20° <del>01</del> '43		direct	334 Nov 30 j 19:03	21° <del>54</del> '36	
conjunction	327 Feb 12 j 08:19	23° <del>54</del> '25	0°-43'-6	conjunction	335 Mar 16 j 12:54	25° <del>48</del> '32	0°-41'-15
minimum elong	327 Feb 12 j 08:19	23° <del>54</del> '25	0°43'07	minimum elong	335 Mar 16 j 12:54	25° <del>48</del> '32	0°41'17
max. Earth dist.	327 Feb 13 j 08:48	23° <del>57</del> '55	21.04224 AU	max. Earth dist.	335 Mar 17 j 07:40	25° <del>51</del> '13	20.95080 AU
retrograde	327 Jun 02 j 17:59	27° <del>56</del> '18		retrograde	335 Jul 05 j 17:09	29° <del>52</del> '27	
opposition	327 Aug 19 j 20:29	25° <del>57</del> '07	0°-47'-56	opposition	335 Sep 21 j 04:54	27° <del>52</del> '24	0°-44'-58
min. Earth dist.	327 Aug 18 j 21:14	25° <del>59</del> '27	19.04470 AU	min. Earth dist.	335 Sep 20 j 12:06	27° <del>54</del> '07	18.93785 AU
direct	327 Nov 03 j 06:10	24° <del>00</del> '53		direct	335 Dec 04 j 23:52	25° <del>55</del> '27	
conjunction	328 Feb 16 j 14:06	27° <del>53</del> '25	0°-43'-37	conjunction	336 Mar 19 j 21:34	29° <del>49</del> '59	0°-40'-6
minimum elong	328 Feb 16 j 14:06	27° <del>53</del> '25	0°43'38	minimum elong	336 Mar 19 j 21:34	29° <del>49</del> '59	0°40'07
max. Earth dist.	328 Feb 17 j 15:04	27° <del>57</del> '00	21.04489 AU	max. Earth dist.	336 Mar 20 j 16:11	29° <del>52</del> '39	20.92337 AU
	328 Mar 26 j 07:36	0° <del>5</del>			336 Mar 22 j 19:32	0° <del>5</del>	
retrograde	328 Jun 06 j 02:07	1° <del>55</del> '22		retrograde	336 Jul 09 j 02:35	3° <del>54</del> '23	
	328 Aug 21 j 13:04	30° <del>R</del>		opposition	336 Sep 24 j 11:54	1° <del>54</del> '17	0°-43'-35
min. Earth dist.	328 Aug 22 j 05:36	29° <del>58</del> '20	19.04479 AU	min. Earth dist.	336 Sep 23 j 20:06	1° <del>55</del> '54	18.90840 AU
opposition	328 Aug 23 j 04:09	29° <del>56</del> '04	0°-48'-22		336 Nov 27 j 20:37	30° <del>R</del>	
direct	328 Nov 06 j 11:45	27° <del>59</del> '47		direct	336 Dec 08 j 05:53	29° <del>57</del> '12	
	329 Jan 16 j 19:46	0° <del>5</del>			336 Dec 18 j 14:33	0° <del>5</del>	
conjunction	329 Feb 19 j 19:53	1° <del>52</del> '14	0°-43'-54	conjunction	337 Mar 24 j 06:39	3° <del>52</del> '24	0°-38'-44
minimum elong	329 Feb 19 j 19:53	1° <del>52</del> '14	0°43'55	minimum elong	337 Mar 24 j 06:39	3° <del>52</del> '24	0°38'45
max. Earth dist.	329 Feb 20 j 19:16	1° <del>55</del> '35	21.04272 AU	max. Earth dist.	337 Mar 24 j 22:40	3° <del>54</del> '41	20.89199 AU
retrograde	329 Jun 10 j 10:44	5° <del>54</del> '18		retrograde	337 Jul 13 j 13:29	7° <del>57</del> '21	
opposition	329 Aug 27 j 11:27	3° <del>54</del> '52	0°-48'-35	opposition	337 Sep 28 j 19:07	5° <del>57</del> '10	0°-41'-58
min. Earth dist.	329 Aug 26 j 13:36	3° <del>57</del> '04	19.04044 AU	min. Earth dist.	337 Sep 28 j 05:11	5° <del>58</del> '36	18.87492 AU
direct	329 Nov 10 j 16:50	1° <del>58</del> '30		direct	337 Dec 12 j 11:35	3° <del>59</del> '55	
conjunction	330 Feb 24 j 01:58	5° <del>50</del> '58	0°-43'-59	conjunction	338 Mar 28 j 16:38	7° <del>55</del> '53	0°-37'-10
minimum elong	330 Feb 24 j 01:58	5° <del>50</del> '58	0°44'00	minimum elong	338 Mar 28 j 16:38	7° <del>55</del> '53	0°37'11
max. Earth dist.	330 Feb 25 j 01:51	5° <del>54</del> '23	21.03624 AU	max. Earth dist.	338 Mar 29 j 08:06	7° <del>58</del> '06	20.85631 AU
retrograde	330 Jun 14 j 19:12	9° <del>53</del> '11		retrograde	338 Jul 17 j 23:37	12° <del>50</del> '123	
opposition	330 Aug 31 j 18:35	7° <del>53</del> '37	0°-48'-33	opposition	338 Oct 03 j 02:32	10° <del>50</del> '107	0°-40'-8
min. Earth dist.	330 Aug 30 j 21:16	7° <del>55</del> '46	19.03197 AU	min. Earth dist.	338 Oct 02 j 13:47	10° <del>50</del> '226	18.83692 AU
direct	330 Nov 14 j 22:39	5° <del>57</del> '11		direct	338 Dec 16 j 18:10	8° <del>50</del> '341	
conjunction	331 Feb 28 j 08:02	9° <del>49</del> '44	0°-43'-51	conjunction	339 Apr 02 j 03:07	12° <del>50</del> '026	0°-35'-24
minimum elong	331 Feb 28 j 08:02	9° <del>49</del> '44	0°43'52	minimum elong	339 Apr 02 j 03:07	12° <del>50</del> '026	0°35'24
max. Earth dist.	331 Mar 01 j 06:19	9° <del>52</del> '55	21.02601 AU	max. Earth dist.	339 Apr 02 j 15:34	12° <del>50</del> '213	20.81612 AU
retrograde	331 Jun 19 j 03:54	13° <del>52</del> '12		retrograde	339 Jul 22 j 10:50	16° <del>50</del> '633	
min. Earth dist.	331 Sep 04 j 05:04	11° <del>54</del> '34	19.01998 AU	opposition	339 Oct 07 j 10:19	14° <del>50</del> '609	0°-38'-5
opposition	331 Sep 05 j 01:36	11° <del>52</del> '30	0°-48'-18	min. Earth dist.	339 Oct 06 j 23:46	14° <del>50</del> '714	18.79439 AU
direct	331 Nov 19 j 02:49	9° <del>55</del> '57		direct	339 Dec 21 j 00:52	12° <del>50</del> '828	
conjunction	332 Mar 03 j 14:46	13° <del>48</del> '43	0°-43'-31	conjunction	340 Apr 05 j 14:33	16° <del>50</del> '606	0°-33'-27
minimum elong	332 Mar 03 j 14:46	13° <del>48</del> '43	0°43'31	minimum elong	340 Apr 05 j 14:33	16° <del>50</del> '606	0°33'28
max. Earth dist.	332 Mar 04 j 13:23	13° <del>51</del> '57	21.01220 AU	max. Earth dist.	340 Apr 06 j 02:08	16° <del>50</del> '746	20.77132 AU

retrograde	340 Jul 25 j 22:02	20°♈12'48		direct	348 Jan 23 j 00:48	15°♏30'15	
opposition	340 Oct 10 j 18:04	18°♈12'16	0°-35'-49				
min. Earth dist.	340 Oct 10 j 08:48	18°♈13'14	18.74733 AU	conjunction	348 May 10 j 10:02	19°♏37'20	0°-12'-11
direct	340 Dec 24 j 08:34	16°♈14'18		minimum elong	348 May 10 j 10:02	19°♏37'20	0°12'11
				behind sun begin	348 May 10 j 05:36	19°♏36'42	
conjunction	341 Apr 10 j 02:23	20°♈12'52	0°-31'-19	behind sun end	348 May 10 j 14:28	19°♏37'58	
minimum elong	341 Apr 10 j 02:23	20°♈12'52	0°31'19	max. Earth dist.	348 May 10 j 06:51	19°♏36'53	20.31696 AU
max. Earth dist.	341 Apr 10 j 10:52	20°♈14'05	20.72238 AU	retrograde	348 Aug 29 j 08:15	23°♏49'51	
retrograde	341 Jul 30 j 09:14	24°♈20'13		opposition	348 Nov 12 j 21:23	21°♏48'13	0°-11'-42
opposition	341 Oct 15 j 02:18	22°♈19'30	0°-33'-22	min. Earth dist.	348 Nov 13 j 00:29	21°♏47'54	18.28622 AU
min. Earth dist.	341 Oct 14 j 19:18	22°♈20'13	18.69654 AU	direct	349 Jan 26 j 13:07	19°♏47'31	
direct	341 Dec 28 j 15:53	20°♈21'11					
				conjunction	349 May 15 j 04:07	23°♏56'02	0°-9'00
conjunction	342 Apr 14 j 14:54	24°♈20'46	0°-29'00	minimum elong	349 May 15 j 04:07	23°♏56'02	0°09'01
minimum elong	342 Apr 14 j 14:55	24°♈20'46	0°29'02	behind sun begin	349 May 14 j 22:22	23°♏55'13	
max. Earth dist.	342 Apr 14 j 22:44	24°♈21'54	20.66994 AU	behind sun end	349 May 15 j 09:51	23°♏56'52	
retrograde	342 Aug 03 j 21:39	28°♈28'46		max. Earth dist.	349 May 14 j 22:06	23°♏55'11	20.25579 AU
opposition	342 Oct 19 j 10:42	26°♈27'52	0°-30'-44	retrograde	349 Sep 02 j 23:44	28°♏09'23	
min. Earth dist.	342 Oct 19 j 04:44	26°♈28'30	18.64251 AU	opposition	349 Nov 17 j 09:12	26°♏07'43	0°-8'-7
direct	343 Jan 02 j 00:53	24°♈29'14		min. Earth dist.	349 Nov 17 j 14:50	26°♏07'07	18.22496 AU
				direct	350 Jan 30 j 23:59	24°♏06'41	
conjunction	343 Apr 19 j 04:08	28°♈29'53	0°-26'-32				
minimum elong	343 Apr 19 j 04:08	28°♈29'53	0°26'33	conjunction	350 May 19 j 23:08	28°♏16'43	0°-5'-44
max. Earth dist.	343 Apr 19 j 08:57	28°♈30'35	20.61468 AU	minimum elong	350 May 19 j 23:09	28°♏16'43	0°05'45
	343 May 15 j 16:09	0°♏		behind sun begin	350 May 19 j 16:40	28°♏15'47	
retrograde	343 Aug 08 j 09:09	2°♏38'34		behind sun end	350 May 20 j 05:37	28°♏17'39	
opposition	343 Oct 23 j 19:23	0°♏37'30	0°-27'-55	max. Earth dist.	350 May 19 j 16:01	28°♏15'41	20.19435 AU
min. Earth dist.	343 Oct 23 j 15:44	0°♏37'53	18.58612 AU		350 Jun 18 j 20:30	0°♐	
	343 Nov 08 j 00:09	30°♐		retrograde	350 Sep 07 j 18:19	0°♐30'53	
direct	344 Jan 06 j 08:47	28°♈38'29		opposition	350 Nov 21 j 21:32	0°♐29'11	0°-4'-27
	344 Mar 03 j 17:13	0°♏		min. Earth dist.	350 Nov 22 j 04:01	0°♐28'29	18.16317 AU
					350 Dec 03 j 09:35	30°♐	
conjunction	344 Apr 22 j 18:17	2°♏40'18	0°-23'-55	direct	351 Feb 04 j 14:15	28°♏27'49	
minimum elong	344 Apr 22 j 18:17	2°♏40'18	0°23'56		351 Apr 06 j 13:36	0°♐	
max. Earth dist.	344 Apr 22 j 22:24	2°♏40'54	20.55728 AU				
retrograde	344 Aug 11 j 22:41	6°♏49'42		conjunction	351 May 24 j 19:12	2°♐39'21	0°-2'-24
opposition	344 Oct 27 j 04:25	4°♏48'28	0°-24'-57	minimum elong	351 May 24 j 19:12	2°♐39'22	0°02'25
min. Earth dist.	344 Oct 27 j 01:37	4°♏48'46	18.52781 AU	behind sun begin	351 May 24 j 12:26	2°♐38'23	
direct	345 Jan 09 j 19:00	2°♏49'07		behind sun end	351 May 25 j 01:59	2°♐40'20	
				max. Earth dist.	351 May 24 j 09:10	2°♐37'53	20.13217 AU
conjunction	345 Apr 27 j 08:49	6°♏52'08	0°-21'-10	retrograde	351 Sep 12 j 10:37	6°♐54'21	
minimum elong	345 Apr 27 j 08:49	6°♏52'08	0°21'11	opposition	351 Nov 26 j 10:38	4°♐52'35	0°00'-44
max. Earth dist.	345 Apr 27 j 10:03	6°♏52'19	20.49829 AU	min. Earth dist.	351 Nov 26 j 19:59	4°♐51'35	18.10071 AU
retrograde	345 Aug 16 j 11:01	11°♏02'17		asc. node	352 Feb 07 j 18:33	2°♐50'55	
opposition	345 Oct 31 j 13:58	9°♏00'54	0°-21'-50	direct	352 Feb 09 j 02:31	2°♐50'52	
min. Earth dist.	345 Oct 31 j 13:23	9°♏00'58	18.46832 AU				
direct	346 Jan 14 j 03:47	7°♏01'11		conjunction	352 May 28 j 16:12	7°♐03'56	0°01'03
				minimum elong	352 May 28 j 16:12	7°♐03'56	0°01'03
conjunction	346 May 02 j 00:24	11°♏05'30	0°-18'-17	behind sun begin	352 May 28 j 09:26	7°♐02'57	
minimum elong	346 May 02 j 00:24	11°♏05'30	0°18'17	behind sun end	352 May 28 j 22:59	7°♐04'55	
max. Earth dist.	346 May 02 j 00:57	11°♏05'35	20.43837 AU	max. Earth dist.	352 May 28 j 04:32	7°♐02'12	20.06934 AU
	346 Jul 26 j 16:28	15°♏		retrograde	352 Sep 16 j 06:39	11°♐19'42	
retrograde	346 Aug 21 j 01:50	15°♏16'24		opposition	352 Nov 30 j 00:25	9°♐17'51	0°03'01
	346 Sep 15 j 15:39	15°♐		min. Earth dist.	352 Nov 30 j 10:35	9°♐16'46	18.03750 AU
opposition	346 Nov 04 j 23:50	13°♏14'55	0°-18'-34	direct	353 Feb 12 j 18:56	7°♐15'46	
min. Earth dist.	346 Nov 04 j 23:55	13°♏14'55	18.40800 AU				
direct	347 Jan 18 j 14:54	11°♏14'52		conjunction	353 Jun 02 j 13:45	11°♐30'19	0°04'29
	347 Apr 30 j 20:30	15°♏		minimum elong	353 Jun 02 j 13:45	11°♐30'19	0°04'29
				behind sun begin	353 Jun 02 j 07:06	11°♐29'21	
conjunction	347 May 06 j 16:42	15°♏20'31	0°-15'-17	behind sun end	353 Jun 02 j 20:24	11°♐31'17	
minimum elong	347 May 06 j 16:43	15°♏20'31	0°15'18	max. Earth dist.	353 Jun 01 j 23:30	11°♐28'12	20.00578 AU
behind sun begin	347 May 06 j 15:02	15°♏20'17		retrograde	353 Sep 20 j 23:31	15°♐46'50	
behind sun end	347 May 06 j 18:23	15°♏20'46		opposition	353 Dec 04 j 15:02	13°♐44'54	0°06'47
max. Earth dist.	347 May 06 j 14:22	15°♏20'11	20.37783 AU	min. Earth dist.	353 Dec 05 j 03:54	13°♐43'31	17.97386 AU
retrograde	347 Aug 25 j 15:47	19°♏32'14		direct	354 Feb 17 j 09:19	11°♐42'24	
opposition	347 Nov 09 j 10:26	17°♏30'39	0°-15'-11				
min. Earth dist.	347 Nov 09 j 12:51	17°♏30'24	18.34729 AU	conjunction	354 Jun 07 j 12:14	15°♐58'27	0°07'51

minimum elong	354 Jun 07 j 12:14	15°II58'27	0°07'50	retrograde	361 Oct 27 j 18:33	22°☾19'38	
behind sun begin	354 Jun 07 j 06:10	15°II57'33		opposition	362 Jan 09 j 10:52	20°☾17'07	0°34'13
behind sun end	354 Jun 07 j 18:18	15°II59'20		min. Earth dist.	362 Jan 10 j 08:09	20°☾14'48	17.53029 AU
max. Earth dist.	354 Jun 06 j 20:12	15°II56'03	19.94217 AU	direct	362 Mar 26 j 00:28	18°☾11'45	
retrograde	354 Sep 25 j 19:55	20°II15'40					
opposition	354 Dec 09 j 05:59	18°II13'36	0°10'32	conjunction	362 Jul 15 j 20:37	22°☾38'29	0°31'59
min. Earth dist.	354 Dec 09 j 19:35	18°II12'08	17.91036 AU	minimum elong	362 Jul 15 j 20:37	22°☾38'29	0°31'58
direct	355 Feb 22 j 03:37	16°II10'42		max. Earth dist.	362 Jul 14 j 18:32	22°☾34'27	19.51045 AU
				retrograde	362 Nov 01 j 17:42	27°☾00'11	
conjunction	355 Jun 12 j 11:28	20°II28'13	0°11'12	opposition	363 Jan 14 j 07:19	24°☾57'44	0°36'56
minimum elong	355 Jun 12 j 11:27	20°II28'13	0°11'11	min. Earth dist.	363 Jan 15 j 04:51	24°☾55'24	17.49232 AU
behind sun begin	355 Jun 12 j 06:31	20°II27'29		direct	363 Mar 30 j 23:53	22°☾52'10	
behind sun end	355 Jun 12 j 16:24	20°II28'56					
max. Earth dist.	355 Jun 11 j 17:23	20°II25'30	19.87889 AU	conjunction	363 Jul 20 j 23:53	27°☾20'00	0°34'19
retrograde	355 Sep 30 j 13:31	24°II46'06		minimum elong	363 Jul 20 j 23:52	27°☾20'00	0°34'20
opposition	355 Dec 13 j 21:52	22°II43'56	0°14'15	max. Earth dist.	363 Jul 19 j 22:25	27°☾16'04	19.47467 AU
min. Earth dist.	355 Dec 14 j 13:59	22°II42'11	17.84765 AU		363 Sep 04 j 23:48	0°♂	
direct	356 Feb 26 j 20:06	20°II40'35		retrograde	363 Nov 06 j 16:55	1°♂42'05	
					364 Jan 11 j 10:22	30°☾	
conjunction	356 Jun 16 j 11:10	24°II59'33	0°14'29	opposition	364 Jan 19 j 04:43	29°☾39'44	0°39'26
minimum elong	356 Jun 16 j 11:10	24°II59'33	0°14'30	min. Earth dist.	364 Jan 20 j 02:57	29°☾37'18	17.45874 AU
behind sun begin	356 Jun 16 j 08:27	24°II59'09		direct	364 Apr 03 j 23:06	27°☾34'02	
behind sun end	356 Jun 16 j 13:54	24°II59'57			364 Jun 20 j 23:12	0°♂	
max. Earth dist.	356 Jun 15 j 15:20	24°II56'33	19.81689 AU	max. Earth dist.	364 Jul 24 j 00:04	1°♂58'37	19.44323 AU
retrograde	356 Oct 04 j 10:26	29°II18'05					
opposition	356 Dec 17 j 14:13	27°II15'48	0°17'53	conjunction	364 Jul 25 j 03:06	2°♂02'49	0°36'26
min. Earth dist.	356 Dec 18 j 06:45	27°II14'00	17.78655 AU	minimum elong	364 Jul 25 j 03:06	2°♂02'49	0°36'26
direct	357 Mar 02 j 16:14	25°II12'02		retrograde	364 Nov 10 j 17:01	6°♂25'14	
				opposition	365 Jan 23 j 02:45	4°♂22'57	0°41'40
conjunction	357 Jun 21 j 11:33	29°II32'24	0°17'43	min. Earth dist.	365 Jan 24 j 01:24	4°♂20'29	17.42954 AU
minimum elong	357 Jun 21 j 11:33	29°II32'24	0°17'43	direct	365 Apr 08 j 23:33	2°♂17'06	
max. Earth dist.	357 Jun 20 j 14:35	29°II29'14	19.75678 AU	max. Earth dist.	365 Jul 29 j 04:30	6°♂42'39	19.41599 AU
	357 Jun 29 j 01:35	0°☾					
retrograde	357 Oct 09 j 04:59	3°☾51'33		conjunction	365 Jul 30 j 06:48	6°♂46'45	0°38'19
opposition	357 Dec 22 j 07:23	1°☾49'09	0°21'26	minimum elong	365 Jul 30 j 06:48	6°♂46'45	0°38'19
min. Earth dist.	357 Dec 23 j 01:57	1°☾47'08	17.72784 AU	retrograde	365 Nov 15 j 17:03	11°♂09'23	
	358 Feb 11 j 14:02	30°♂II		opposition	366 Jan 28 j 01:20	9°♂07'11	0°43'38
direct	358 Mar 07 j 10:29	29°II44'59		min. Earth dist.	366 Jan 29 j 00:12	9°♂04'41	17.40430 AU
	358 Mar 31 j 05:50	0°☾		direct	366 Apr 13 j 23:51	7°♂01'13	
				max. Earth dist.	366 Aug 03 j 06:52	11°♂27'15	19.39276 AU
conjunction	358 Jun 26 j 12:21	4°☾06'43	0°20'51				
minimum elong	358 Jun 26 j 12:21	4°☾06'43	0°20'52	conjunction	366 Aug 04 j 10:30	11°♂31'34	0°39'57
max. Earth dist.	358 Jun 25 j 13:38	4°☾03'16	19.69956 AU	minimum elong	366 Aug 04 j 10:30	11°♂31'34	0°39'58
retrograde	358 Oct 14 j 02:37	8°☾26'27			366 Oct 07 j 01:11	15°♂	
opposition	358 Dec 27 j 01:07	6°☾23'58	0°24'52	retrograde	366 Nov 20 j 17:20	15°♂54'21	
min. Earth dist.	358 Dec 27 j 19:53	6°☾21'56	17.67229 AU		367 Jan 05 j 13:21	15°♂♂	
direct	359 Mar 12 j 07:54	4°☾19'25		opposition	367 Feb 02 j 00:36	13°♂52'13	0°45'19
				min. Earth dist.	367 Feb 03 j 00:02	13°♂49'39	17.38318 AU
conjunction	359 Jul 01 j 13:53	8°☾42'30	0°23'52	direct	367 Apr 19 j 01:27	11°♂46'07	
minimum elong	359 Jul 01 j 13:53	8°☾42'30	0°23'52		367 Jul 19 j 19:26	15°♂	
max. Earth dist.	359 Jun 30 j 14:48	8°☾38'59	19.64566 AU	max. Earth dist.	367 Aug 08 j 11:25	16°♂12'50	19.37363 AU
retrograde	359 Oct 18 j 22:39	13°☾02'46					
opposition	359 Dec 31 j 19:39	11°☾00'14	0°28'09	conjunction	367 Aug 09 j 14:16	16°♂17'03	0°41'18
min. Earth dist.	360 Jan 01 j 15:57	10°☾58'01	17.62044 AU	minimum elong	367 Aug 09 j 14:16	16°♂17'03	0°41'18
direct	360 Mar 16 j 04:10	8°☾55'21		retrograde	367 Nov 25 j 17:15	20°♂39'53	
				opposition	368 Feb 07 j 00:18	18°♂37'47	0°46'40
conjunction	360 Jul 05 j 15:42	13°☾19'43	0°26'44	min. Earth dist.	368 Feb 07 j 23:17	18°♂35'17	17.36608 AU
minimum elong	360 Jul 05 j 15:42	13°☾19'43	0°26'44	direct	368 Apr 23 j 03:43	16°♂31'36	
max. Earth dist.	360 Jul 04 j 14:55	13°☾15'55	19.59597 AU				
retrograde	360 Oct 22 j 20:54	17°☾40'30		conjunction	368 Aug 13 j 17:49	21°♂02'56	0°42'22
opposition	361 Jan 04 j 14:52	15°☾37'57	0°31'17	minimum elong	368 Aug 13 j 17:49	21°♂02'56	0°42'23
min. Earth dist.	361 Jan 05 j 11:07	15°☾35'44	17.57307 AU	max. Earth dist.	368 Aug 12 j 14:26	20°♂58'38	19.35871 AU
direct	361 Mar 21 j 02:31	13°☾32'47		retrograde	368 Nov 29 j 16:33	25°♂25'45	
				opposition	369 Feb 11 j 00:29	23°♂23'41	0°47'43
conjunction	361 Jul 10 j 17:57	17°☾58'22	0°29'27	min. Earth dist.	369 Feb 11 j 23:58	23°♂21'07	17.35354 AU
minimum elong	361 Jul 10 j 17:57	17°☾58'22	0°29'27	direct	369 Apr 28 j 06:13	21°♂17'24	
max. Earth dist.	361 Jul 09 j 17:33	17°☾54'37	19.55081 AU				

conjunction	369 Aug 18 j 21:04	25° $\Omega$ 48'59	0°43'09	direct	377 Jun 06 j 08:47	29° $\eta$ 14'20	
minimum elong	369 Aug 18 j 21:04	25° $\Omega$ 48'59	0°43'09		377 Jul 18 j 13:05	0° $\Omega$	
max. Earth dist.	369 Aug 17 j 18:36	25° $\Omega$ 44'50	19.34852 AU				
	369 Nov 14 j 07:12	0° $\eta$		conjunction	377 Sep 26 j 06:14	3° $\Omega$ 43'02	0°38'44
retrograde	369 Dec 04 j 16:17	0° $\eta$ 11'43		minimum elong	377 Sep 26 j 06:14	3° $\Omega$ 43'02	0°38'43
	369 Dec 25 j 05:22	30° $\mathcal{R}\Omega$		max. Earth dist.	377 Sep 25 j 14:10	3° $\Omega$ 40'30	19.46799 AU
opposition	370 Feb 16 j 00:52	28° $\Omega$ 09'39	0°48'25	retrograde	378 Jan 11 j 07:10	8° $\Omega$ 02'43	
min. Earth dist.	370 Feb 16 j 23:15	28° $\Omega$ 07'13	17.34564 AU	opposition	378 Mar 26 j 10:10	6° $\Omega$ 01'24	0°42'12
direct	370 May 03 j 10:24	26° $\Omega$ 03'19		min. Earth dist.	378 Mar 26 j 23:06	6° $\Omega$ 00'01	17.48726 AU
	370 Aug 14 j 17:02	0° $\eta$		direct	378 Jun 11 j 11:37	3° $\Omega$ 56'09	
max. Earth dist.	370 Aug 22 j 22:02	0° $\eta$ 30'54	19.34312 AU				
				conjunction	378 Oct 01 j 04:44	8° $\Omega$ 23'59	0°36'56
conjunction	370 Aug 24 j 00:06	0° $\eta$ 35'00	0°43'38	minimum elong	378 Oct 01 j 04:44	8° $\Omega$ 23'59	0°36'57
minimum elong	370 Aug 24 j 00:06	0° $\eta$ 35'00	0°43'38	max. Earth dist.	378 Sep 30 j 15:30	8° $\Omega$ 21'54	19.50716 AU
retrograde	370 Dec 09 j 14:35	4° $\eta$ 57'32		retrograde	379 Jan 16 j 04:42	12° $\Omega$ 43'04	
opposition	371 Feb 21 j 01:35	2° $\eta$ 55'29	0°48'47	opposition	379 Mar 31 j 11:26	10° $\Omega$ 41'56	0°40'04
min. Earth dist.	371 Feb 22 j 00:21	2° $\eta$ 53'01	17.34291 AU	min. Earth dist.	379 Mar 31 j 23:29	10° $\Omega$ 40'39	17.52826 AU
direct	371 May 08 j 13:42	0° $\eta$ 49'07		direct	379 Jun 16 j 13:39	8° $\Omega$ 37'01	
max. Earth dist.	371 Aug 28 j 01:33	5° $\eta$ 16'48	19.34316 AU				
				conjunction	379 Oct 06 j 02:22	13° $\Omega$ 03'50	0°34'55
conjunction	371 Aug 29 j 02:40	5° $\eta$ 20'45	0°43'48	minimum elong	379 Oct 06 j 02:22	13° $\Omega$ 03'50	0°34'54
minimum elong	371 Aug 29 j 02:40	5° $\eta$ 20'45	0°43'49	max. Earth dist.	379 Oct 05 j 13:45	13° $\Omega$ 01'51	19.55004 AU
retrograde	371 Dec 14 j 14:19	9° $\eta$ 43'02		retrograde	380 Jan 21 j 02:29	17° $\Omega$ 22'17	
opposition	372 Feb 26 j 02:32	7° $\eta$ 41'00	0°48'49	opposition	380 Apr 04 j 12:28	15° $\Omega$ 21'18	0°37'40
min. Earth dist.	372 Feb 26 j 23:29	7° $\eta$ 38'44	17.34569 AU	min. Earth dist.	380 Apr 04 j 22:28	15° $\Omega$ 20'14	17.57282 AU
direct	372 May 12 j 18:36	5° $\eta$ 34'37		direct	380 Jun 20 j 15:29	13° $\Omega$ 16'42	
max. Earth dist.	372 Sep 01 j 05:04	10° $\eta$ 02'21	19.34885 AU				
				conjunction	380 Oct 09 j 23:16	17° $\Omega$ 42'25	0°32'40
conjunction	372 Sep 02 j 04:37	10° $\eta$ 06'03	0°43'41	minimum elong	380 Oct 09 j 23:16	17° $\Omega$ 42'25	0°32'39
minimum elong	372 Sep 02 j 04:37	10° $\eta$ 06'03	0°43'40	max. Earth dist.	380 Oct 09 j 13:30	17° $\Omega$ 40'54	19.59609 AU
retrograde	372 Dec 18 j 12:17	14° $\eta$ 28'02		retrograde	381 Jan 24 j 23:28	22° $\Omega$ 00'11	
opposition	373 Mar 02 j 03:46	12° $\eta$ 26'02	0°48'30	opposition	381 Apr 09 j 13:15	19° $\Omega$ 59'21	0°35'02
min. Earth dist.	373 Mar 03 j 00:37	12° $\eta$ 23'47	17.35446 AU	min. Earth dist.	381 Apr 09 j 21:57	19° $\Omega$ 58'26	17.62013 AU
direct	373 May 17 j 21:16	10° $\eta$ 19'42		direct	381 Jun 25 j 17:50	17° $\Omega$ 55'06	
max. Earth dist.	373 Sep 06 j 07:28	14° $\eta$ 47'15	19.36078 AU				
				conjunction	381 Oct 14 j 19:21	22° $\Omega$ 19'37	0°30'12
conjunction	373 Sep 07 j 06:05	14° $\eta$ 50'49	0°43'15	minimum elong	381 Oct 14 j 19:21	22° $\Omega$ 19'37	0°30'12
minimum elong	373 Sep 07 j 06:05	14° $\eta$ 50'49	0°43'15	max. Earth dist.	381 Oct 14 j 10:15	22° $\Omega$ 18'12	19.64474 AU
retrograde	373 Dec 23 j 12:19	19° $\eta$ 12'24		retrograde	382 Jan 29 j 19:08	26° $\Omega$ 36'40	
opposition	374 Mar 07 j 04:48	17° $\eta$ 10'29	0°47'52	opposition	382 Apr 14 j 13:30	24° $\Omega$ 35'57	0°32'11
min. Earth dist.	374 Mar 07 j 23:23	17° $\eta$ 08'29	17.36944 AU	min. Earth dist.	382 Apr 14 j 20:31	24° $\Omega$ 35'12	17.66999 AU
direct	374 May 23 j 01:41	15° $\eta$ 04'15		direct	382 Jun 30 j 18:44	22° $\Omega$ 32'00	
max. Earth dist.	374 Sep 11 j 10:49	19° $\eta$ 31'45	19.37889 AU				
				conjunction	382 Oct 19 j 14:44	26° $\Omega$ 55'16	0°27'34
conjunction	374 Sep 12 j 07:11	19° $\eta$ 34'57	0°42'32	minimum elong	382 Oct 19 j 14:44	26° $\Omega$ 55'16	0°27'34
minimum elong	374 Sep 12 j 07:11	19° $\eta$ 34'57	0°42'32	max. Earth dist.	382 Oct 19 j 08:21	26° $\Omega$ 54'16	19.69575 AU
retrograde	374 Dec 28 j 10:15	23° $\eta$ 56'07			382 Dec 13 j 12:39	0° $\mathcal{M}$	
opposition	375 Mar 12 j 06:14	21° $\eta$ 54'20	0°46'55	retrograde	383 Feb 03 j 15:05	1° $\mathcal{M}$ 11'32	
min. Earth dist.	375 Mar 13 j 00:25	21° $\eta$ 52'22	17.39061 AU		383 Mar 30 j 11:14	30° $\mathcal{R}\Omega$	
direct	375 May 28 j 03:33	19° $\eta$ 48'16		opposition	383 Apr 19 j 13:31	29° $\Omega$ 10'56	0°29'09
max. Earth dist.	375 Sep 16 j 11:55	24° $\eta$ 15'20	19.40317 AU	min. Earth dist.	383 Apr 19 j 18:44	29° $\Omega$ 10'23	17.72193 AU
				direct	383 Jul 05 j 20:44	27° $\Omega$ 07'19	
conjunction	375 Sep 17 j 07:25	24° $\eta$ 18'24	0°41'32		383 Sep 29 j 23:37	0° $\mathcal{M}$	
minimum elong	375 Sep 17 j 07:25	24° $\eta$ 18'24	0°41'32				
retrograde	376 Jan 02 j 10:10	28° $\eta$ 39'08		conjunction	383 Oct 24 j 08:56	1° $\mathcal{M}$ 29'12	0°24'46
opposition	376 Mar 16 j 07:34	26° $\eta$ 37'29	0°45'38	minimum elong	383 Oct 24 j 08:56	1° $\mathcal{M}$ 29'12	0°24'47
min. Earth dist.	376 Mar 16 j 23:18	26° $\eta$ 35'47	17.41771 AU	max. Earth dist.	383 Oct 24 j 03:39	1° $\mathcal{M}$ 28'23	19.74884 AU
direct	376 Jun 01 j 07:09	24° $\eta$ 31'39		retrograde	384 Feb 08 j 08:58	5° $\mathcal{M}$ 44'42	
				opposition	384 Apr 23 j 13:03	3° $\mathcal{M}$ 44'10	0°25'57
conjunction	376 Sep 21 j 07:16	29° $\eta$ 01'08	0°40'16	min. Earth dist.	384 Apr 23 j 16:42	3° $\mathcal{M}$ 43'47	17.77614 AU
minimum elong	376 Sep 21 j 07:16	29° $\eta$ 01'08	0°40'17	direct	384 Jul 09 j 20:07	1° $\mathcal{M}$ 40'51	
max. Earth dist.	376 Sep 20 j 14:32	28° $\eta$ 58'30	19.43305 AU				
	376 Oct 06 j 23:55	0° $\Omega$		conjunction	384 Oct 28 j 02:24	6° $\mathcal{M}$ 01'19	0°21'50
retrograde	377 Jan 06 j 08:07	3° $\Omega$ 21'21		minimum elong	384 Oct 28 j 02:24	6° $\mathcal{M}$ 01'19	0°21'50
opposition	377 Mar 21 j 08:56	1° $\Omega$ 19'53	0°44'04	max. Earth dist.	384 Oct 27 j 23:51	6° $\mathcal{M}$ 00'56	19.80416 AU
min. Earth dist.	377 Mar 22 j 00:06	1° $\Omega$ 18'15	17.45014 AU	retrograde	385 Feb 12 j 03:25	10° $\mathcal{M}$ 16'00	
	377 Apr 24 j 02:45	30° $\mathcal{R}\eta$		opposition	385 Apr 28 j 11:46	8° $\mathcal{M}$ 15'32	0°22'36

min. Earth dist.	385 Apr 28 j 13:07	8°M15'24	17.83245 AU	minimum elong	391 Nov 28 j 03:40	6°Z54'46	0°00'48
direct	385 Jul 14 j 20:22	6°M12'32		behind sun begin	391 Nov 27 j 21:08	6°Z53'49	
				behind sun end	391 Nov 28 j 10:12	6°Z55'44	
conjunction	385 Nov 01 j 18:48	10°M31'32	0°18'47	max. Earth dist.	391 Nov 28 j 15:20	6°Z56'32	20.24762 AU
minimum elong	385 Nov 01 j 18:48	10°M31'32	0°18'48	retrograde	392 Mar 14 j 19:42	11°Z03'56	
max. Earth dist.	385 Nov 01 j 17:45	10°M31'23	19.86164 AU	opposition	392 May 30 j 10:57	9°Z04'22	0°-2'-39
retrograde	386 Feb 16 j 20:01	14°M45'24		min. Earth dist.	392 May 29 j 23:13	9°Z05'33	18.28069 AU
opposition	386 May 03 j 10:07	12°M45'00	0°19'09	direct	392 Aug 15 j 11:40	7°Z04'08	
min. Earth dist.	386 May 03 j 09:58	12°M45'01	17.89119 AU				
direct	386 Jul 19 j 17:41	10°M42'19		conjunction	392 Dec 01 j 14:41	11°Z12'49	0°-4'-6
				minimum elong	392 Dec 01 j 14:41	11°Z12'49	0°04'08
conjunction	386 Nov 06 j 10:18	14°M59'51	0°15'39	behind sun begin	392 Dec 01 j 08:15	11°Z11'53	
minimum elong	386 Nov 06 j 10:18	14°M59'51	0°15'39	behind sun end	392 Dec 01 j 21:08	11°Z13'46	
behind sun begin	386 Nov 06 j 08:29	14°M59'34		max. Earth dist.	392 Dec 02 j 03:41	11°Z14'47	20.31379 AU
behind sun end	386 Nov 06 j 12:06	15°M00'07		retrograde	393 Mar 19 j 11:38	15°Z21'15	
max. Earth dist.	386 Nov 06 j 11:55	15°M00'05	19.92158 AU	opposition	393 Jun 04 j 04:38	13°Z21'49	0°-6'-17
	386 Nov 06 j 11:17	15°M		min. Earth dist.	393 Jun 03 j 14:26	13°Z23'15	18.34621 AU
retrograde	387 Feb 21 j 13:35	19°M12'52		direct	393 Aug 20 j 05:18	11°Z21'59	
opposition	387 May 08 j 07:47	17°M12'34	0°15'37				
min. Earth dist.	387 May 08 j 04:44	17°M12'53	17.95224 AU	conjunction	393 Dec 06 j 01:09	15°Z29'17	0°-7'-21
direct	387 Jul 24 j 15:38	15°M10'16		minimum elong	393 Dec 06 j 01:08	15°Z29'17	0°07'21
				behind sun begin	393 Dec 05 j 19:08	15°Z28'24	
conjunction	387 Nov 11 j 00:56	19°M26'17	0°12'27	behind sun end	393 Dec 06 j 07:08	15°Z30'10	
minimum elong	387 Nov 11 j 00:56	19°M26'17	0°12'27	max. Earth dist.	393 Dec 06 j 15:51	15°Z31'29	20.37841 AU
behind sun begin	387 Nov 10 j 20:34	19°M25'38		retrograde	394 Mar 23 j 23:47	19°Z37'00	
behind sun end	387 Nov 11 j 05:18	19°M26'56		opposition	394 Jun 08 j 22:02	17°Z37'41	0°-9'-52
max. Earth dist.	387 Nov 11 j 04:27	19°M26'48	19.98382 AU	min. Earth dist.	394 Jun 08 j 07:36	17°Z39'09	18.40997 AU
retrograde	388 Feb 26 j 05:25	23°M38'30		direct	394 Aug 24 j 20:01	15°Z38'14	
opposition	388 May 12 j 04:55	21°M38'19	0°12'00				
min. Earth dist.	388 May 12 j 00:29	21°M38'47	18.01569 AU	conjunction	394 Dec 10 j 10:49	19°Z44'08	0°-10'-31
direct	388 Jul 28 j 10:49	19°M36'24		minimum elong	394 Dec 10 j 10:49	19°Z44'08	0°10'33
				behind sun begin	394 Dec 10 j 05:40	19°Z43'23	
conjunction	388 Nov 14 j 14:44	23°M50'55	0°09'12	behind sun end	394 Dec 10 j 15:57	19°Z44'53	
minimum elong	388 Nov 14 j 14:44	23°M50'55	0°09'12	max. Earth dist.	394 Dec 11 j 02:27	19°Z46'28	20.44107 AU
behind sun begin	388 Nov 14 j 09:10	23°M50'06		retrograde	395 Mar 28 j 14:16	23°Z51'11	
behind sun end	388 Nov 14 j 20:18	23°M51'45		opposition	395 Jun 13 j 14:39	21°Z51'57	0°-13'-22
max. Earth dist.	388 Nov 14 j 20:35	23°M51'48	20.04830 AU	min. Earth dist.	395 Jun 12 j 21:56	21°Z53'38	18.47138 AU
retrograde	389 Mar 01 j 22:36	28°M02'21		direct	395 Aug 29 j 12:35	19°Z52'50	
opposition	389 May 17 j 01:15	26°M02'19	0°08'21				
min. Earth dist.	389 May 16 j 17:52	26°M03'04	18.08087 AU	conjunction	395 Dec 14 j 20:04	23°Z57'24	0°-13'-38
direct	389 Aug 02 j 06:58	24°M00'48		minimum elong	395 Dec 14 j 20:04	23°Z57'24	0°13'38
				behind sun begin	395 Dec 14 j 16:22	23°Z56'52	
conjunction	389 Nov 19 j 03:47	28°M13'51	0°05'55	behind sun end	395 Dec 14 j 23:45	23°Z57'56	
minimum elong	389 Nov 19 j 03:46	28°M13'51	0°05'54	max. Earth dist.	395 Dec 15 j 13:20	23°Z59'58	20.50102 AU
behind sun begin	389 Nov 18 j 21:31	28°M12'55		retrograde	396 Apr 01 j 01:27	28°Z03'47	
behind sun end	389 Nov 19 j 10:02	28°M14'47		opposition	396 Jun 17 j 06:36	26°Z04'36	0°-16'-46
max. Earth dist.	389 Nov 19 j 11:34	28°M15'01	20.11411 AU	min. Earth dist.	396 Jun 16 j 13:51	26°Z06'17	18.53000 AU
	389 Dec 19 j 01:07	0°Z		direct	396 Sep 02 j 01:47	24°Z05'47	
retrograde	390 Mar 06 j 13:21	2°Z24'30					
opposition	390 May 21 j 21:04	0°Z24'38	0°04'40	conjunction	396 Dec 18 j 04:38	28°Z09'02	0°-16'-39
min. Earth dist.	390 May 21 j 12:44	0°Z25'29	18.14726 AU	minimum elong	396 Dec 18 j 04:38	28°Z09'02	0°16'41
	390 May 31 j 23:06	30°RM		max. Earth dist.	396 Dec 18 j 22:27	28°Z11'41	20.55820 AU
direct	390 Aug 07 j 00:30	28°M23'33			397 Jan 19 j 09:52	0°Z	
	390 Oct 08 j 20:50	0°Z		retrograde	397 Apr 05 j 14:26	2°Z14'46	
conjunction	390 Nov 23 j 16:07	2°Z35'08	0°02'37	opposition	397 Jun 21 j 21:43	0°Z15'37	0°-20'-4
minimum elong	390 Nov 23 j 16:07	2°Z35'08	0°02'37	min. Earth dist.	397 Jun 21 j 02:56	0°Z17'30	18.58567 AU
behind sun begin	390 Nov 23 j 09:35	2°Z34'10			397 Jun 28 j 09:26	30°RM	
behind sun end	390 Nov 23 j 22:38	2°Z36'06		direct	397 Sep 06 j 16:38	28°Z17'03	
max. Earth dist.	390 Nov 24 j 01:49	2°Z36'35	20.18088 AU		397 Nov 10 j 22:39	0°Z	
retrograde	391 Mar 11 j 06:19	6°Z45'01		conjunction	397 Dec 22 j 12:35	2°Z19'04	0°-19'-34
opposition	391 May 26 j 16:15	4°Z45'18	0°01'00	minimum elong	397 Dec 22 j 12:35	2°Z19'04	0°19'35
min. Earth dist.	391 May 26 j 05:06	4°Z46'26	18.21410 AU	max. Earth dist.	397 Dec 23 j 08:07	2°Z21'57	20.61230 AU
direct	391 Aug 11 j 19:23	2°Z44'39		retrograde	398 Apr 10 j 00:36	6°Z24'11	
desc. node	391 Sep 03 j 18:46	2°Z58'12		opposition	398 Jun 26 j 12:15	4°Z25'01	0°-23'-14
				min. Earth dist.	398 Jun 25 j 17:23	4°Z26'55	18.63845 AU
conjunction	391 Nov 28 j 03:41	6°Z54'47	0°00'-47	direct	398 Sep 11 j 04:46	2°Z26'42	

conjunction	398 Dec 26 j 19:57	6°☾27'30	0°-22'-22	conjunction	407 Jan 27 j 19:12	8°☾55'04	0°-39'-12
minimum elong	398 Dec 26 j 19:57	6°☾27'30	0°22'23	minimum elong	407 Jan 27 j 19:12	8°☾55'04	0°39'13
max. Earth dist.	398 Dec 27 j 16:03	6°☾30'28	20.66384 AU	max. Earth dist.	407 Jan 28 j 20:50	8°☾58'46	20.98073 AU
retrograde	399 Apr 14 j 12:17	10°☾32'03		retrograde	407 May 17 j 16:09	12°☾57'08	
min. Earth dist.	399 Jun 30 j 05:05	8°☾34'58	18.68882 AU	opposition	407 Aug 03 j 18:46	10°☾58'13	0°-44'-5
opposition	399 Jul 01 j 01:58	8°☾32'53	0°-26'-15	min. Earth dist.	407 Aug 02 j 17:51	11°☾00'42	18.99316 AU
direct	399 Sep 15 j 17:29	6°☾34'47		direct	407 Oct 18 j 14:06	9°☾01'50	
conjunction	399 Dec 31 j 02:51	10°☾34'28	0°-25'-1	conjunction	408 Feb 01 j 00:45	12°☾55'34	0°-40'-30
minimum elong	399 Dec 31 j 02:50	10°☾34'28	0°25'03	minimum elong	408 Feb 01 j 00:45	12°☾55'34	0°40'31
max. Earth dist.	400 Jan 01 j 00:46	10°☾37'41	20.71291 AU	max. Earth dist.	408 Feb 02 j 03:04	12°☾59'21	21.00331 AU
retrograde	400 Apr 17 j 21:49	14°☾38'30			408 Mar 09 j 19:07	15°☾	
opposition	400 Jul 04 j 15:04	12°☾39'19	0°-29'-6	retrograde	408 May 21 j 00:00	16°☾57'31	
min. Earth dist.	400 Jul 03 j 18:00	12°☾41'26	18.73682 AU	min. Earth dist.	408 Aug 06 j 03:48	15°☾01'00	19.01308 AU
direct	400 Sep 19 j 04:10	10°☾41'28			408 Aug 06 j 13:46	15°☾	
conjunction	401 Jan 03 j 09:20	14°☾40'06	0°-27'-32	opposition	408 Aug 07 j 03:55	14°☾58'35	0°-45'-24
minimum elong	401 Jan 03 j 09:19	14°☾40'06	0°27'33	direct	408 Oct 21 j 20:55	13°☾02'18	
max. Earth dist.	401 Jan 04 j 07:34	14°☾43'21	20.75979 AU		408 Dec 31 j 07:57	15°☾	
retrograde	401 Apr 22 j 08:18	18°☾43'41		conjunction	409 Feb 04 j 06:16	16°☾55'37	0°-41'-37
min. Earth dist.	401 Jul 08 j 04:26	16°☾46'48	18.78262 AU	minimum elong	409 Feb 04 j 06:16	16°☾55'37	0°41'38
opposition	401 Jul 09 j 03:16	16°☾44'31	0°-31'-48	max. Earth dist.	409 Feb 05 j 07:19	16°☾59'14	21.02055 AU
direct	401 Sep 23 j 14:46	14°☾46'53		retrograde	409 May 25 j 09:35	20°☾57'31	
conjunction	402 Jan 07 j 15:30	18°☾44'35	0°-29'-54	opposition	409 Aug 11 j 12:36	18°☾58'31	0°-46'-31
minimum elong	402 Jan 07 j 15:30	18°☾44'35	0°29'56	min. Earth dist.	409 Aug 10 j 12:33	19°☾00'56	19.02758 AU
max. Earth dist.	402 Jan 08 j 15:26	18°☾48'04	20.80429 AU	direct	409 Oct 26 j 02:47	17°☾02'17	
retrograde	402 Apr 26 j 17:18	22°☾47'46		conjunction	410 Feb 08 j 11:52	20°☾55'16	0°-42'-31
opposition	402 Jul 13 j 15:09	20°☾48'39	0°-34'-19	minimum elong	410 Feb 08 j 11:52	20°☾55'16	0°42'31
min. Earth dist.	402 Jul 12 j 16:11	20°☾50'57	18.82594 AU	max. Earth dist.	410 Feb 09 j 13:22	20°☾58'56	21.03225 AU
direct	402 Sep 27 j 23:51	18°☾51'16		retrograde	410 May 29 j 17:13	24°☾57'08	
conjunction	403 Jan 11 j 21:12	22°☾48'05	0°-32'-7	opposition	410 Aug 15 j 21:02	22°☾58'02	0°-47'-23
minimum elong	403 Jan 11 j 21:12	22°☾48'05	0°32'07	min. Earth dist.	410 Aug 14 j 21:47	23°☾00'22	19.03658 AU
max. Earth dist.	403 Jan 12 j 21:15	22°☾51'35	20.84637 AU	direct	410 Oct 30 j 09:35	21°☾01'48	
retrograde	403 May 01 j 03:32	26°☾50'57		conjunction	411 Feb 12 j 17:21	24°☾54'31	0°-43'-12
min. Earth dist.	403 Jul 17 j 02:01	24°☾54'18	18.86666 AU	minimum elong	411 Feb 12 j 17:21	24°☾54'31	0°43'13
opposition	403 Jul 18 j 02:25	24°☾51'52	0°-36'-40	max. Earth dist.	411 Feb 13 j 17:32	24°☾57'59	21.03880 AU
direct	403 Oct 02 j 08:54	22°☾54'43		retrograde	411 Jun 03 j 02:41	28°☾56'23	
conjunction	404 Jan 16 j 02:56	26°☾50'46	0°-34'-9	min. Earth dist.	411 Aug 19 j 06:06	26°☾59'27	19.04066 AU
minimum elong	404 Jan 16 j 02:55	26°☾50'45	0°34'10	opposition	411 Aug 20 j 05:05	26°☾57'09	0°-48'-1
max. Earth dist.	404 Jan 17 j 04:26	26°☾54'28	20.88547 AU	direct	411 Nov 03 j 15:05	25°☾00'51	
retrograde	404 Mar 18 j 07:25	0°☾		conjunction	412 Feb 16 j 23:07	28°☾53'24	0°-43'-40
	404 May 04 j 11:48	0°☾53'20		minimum elong	412 Feb 16 j 23:07	28°☾53'24	0°43'41
	404 Jun 22 j 12:22	30°☾		max. Earth dist.	412 Feb 17 j 23:45	28°☾56'55	21.04047 AU
opposition	404 Jul 21 j 13:06	28°☾54'19	0°-38'-49		412 Mar 07 j 13:47	0°☾	
min. Earth dist.	404 Jul 20 j 12:55	28°☾56'44	18.90417 AU	retrograde	412 Jun 06 j 09:54	2°☾55'18	
direct	404 Oct 05 j 16:31	26°☾57'25		opposition	412 Aug 23 j 12:37	0°☾55'56	0°-48'-26
	405 Jan 04 j 02:17	0°☾		min. Earth dist.	412 Aug 22 j 14:24	0°☾58'10	19.04011 AU
conjunction	405 Jan 19 j 08:24	0°☾52'45	0°-36'-1		412 Sep 16 j 16:33	30°☾	
minimum elong	405 Jan 19 j 08:24	0°☾52'45	0°36'01	direct	412 Nov 06 j 21:09	28°☾59'34	
max. Earth dist.	405 Jan 20 j 09:35	0°☾56'24	20.92130 AU		412 Dec 26 j 03:08	0°☾	
retrograde	405 May 08 j 22:11	4°☾55'06		conjunction	413 Feb 20 j 04:52	2°☾52'02	0°-43'-56
opposition	405 Jul 25 j 23:21	2°☾56'08	0°-40'-47	minimum elong	413 Feb 20 j 04:52	2°☾52'02	0°43'57
min. Earth dist.	405 Jul 24 j 22:18	2°☾58'38	18.93816 AU	max. Earth dist.	413 Feb 21 j 04:08	2°☾55'21	21.03795 AU
direct	405 Oct 10 j 00:22	0°☾59'26		retrograde	413 Jun 10 j 19:21	6°☾54'03	
conjunction	406 Jan 23 j 13:47	4°☾54'09	0°-37'-42	opposition	413 Aug 27 j 20:02	4°☾54'32	0°-48'-36
minimum elong	406 Jan 23 j 13:47	4°☾54'09	0°37'43	min. Earth dist.	413 Aug 26 j 22:08	4°☾56'45	19.03567 AU
max. Earth dist.	406 Jan 24 j 16:09	4°☾57'58	20.95316 AU	direct	413 Nov 11 j 02:31	2°☾58'06	
retrograde	406 May 13 j 05:57	8°☾56'21		conjunction	414 Feb 24 j 10:47	6°☾50'34	0°-43'-59
min. Earth dist.	406 Jul 29 j 08:43	6°☾59'52	18.96792 AU	minimum elong	414 Feb 24 j 10:47	6°☾50'34	0°44'00
opposition	406 Jul 30 j 09:19	6°☾57'25	0°-42'-32	max. Earth dist.	414 Feb 25 j 10:34	6°☾53'57	21.03155 AU
direct	406 Oct 14 j 07:18	5°☾00'54		retrograde	414 Jun 15 j 02:49	10°☾52'45	
				min. Earth dist.	414 Aug 31 j 06:00	8°☾55'17	19.02746 AU

opposition	414 Sep 01 j 03:16	8° <del>✕</del> 53'08	0°-48'-32	min. Earth dist.	422 Oct 02 j 23:51	11° <del>Υ</del> 03'13	18.82988 AU
direct	414 Nov 15 j 07:35	6° <del>✕</del> 56'37		direct	422 Dec 17 j 03:30	9° <del>Υ</del> 04'31	
conjunction	415 Feb 28 j 17:00	10° <del>✕</del> 49'11	0°-43'-49	conjunction	423 Apr 02 j 12:35	13° <del>Υ</del> 01'23	0°-35'-5
minimum elong	415 Feb 28 j 17:00	10° <del>✕</del> 49'11	0°43'50	minimum elong	423 Apr 02 j 12:35	13° <del>Υ</del> 01'23	0°35'06
max. Earth dist.	415 Mar 01 j 15:18	10° <del>✕</del> 52'22	21.02171 AU	max. Earth dist.	423 Apr 03 j 00:40	13° <del>Υ</del> 03'07	20.80827 AU
retrograde	415 Jun 19 j 12:22	14° <del>✕</del> 51'38		retrograde	423 Jul 22 j 20:36	17° <del>Υ</del> 07'38	
opposition	415 Sep 05 j 10:14	12° <del>✕</del> 51'53	0°-48'-14	opposition	423 Oct 07 j 19:51	15° <del>Υ</del> 07'12	0°-37'-42
min. Earth dist.	415 Sep 04 j 13:31	12° <del>✕</del> 53'59	19.01594 AU	min. Earth dist.	423 Oct 07 j 09:32	15° <del>Υ</del> 08'16	18.78575 AU
direct	415 Nov 19 j 12:51	10° <del>✕</del> 55'17		direct	423 Dec 21 j 09:57	13° <del>Υ</del> 09'29	
conjunction	416 Mar 03 j 23:42	14° <del>✕</del> 48'05	0°-43'-27	conjunction	424 Apr 05 j 23:56	17° <del>Υ</del> 07'14	0°-33'-6
minimum elong	416 Mar 03 j 23:42	14° <del>✕</del> 48'05	0°43'28	minimum elong	424 Apr 05 j 23:56	17° <del>Υ</del> 07'14	0°33'06
max. Earth dist.	416 Mar 04 j 22:17	14° <del>✕</del> 51'19	21.00842 AU	max. Earth dist.	424 Apr 06 j 11:14	17° <del>Υ</del> 08'51	20.76204 AU
retrograde	416 Jun 22 j 20:38	18° <del>✕</del> 50'49		retrograde	424 Jul 26 j 07:40	21° <del>Υ</del> 14'04	
opposition	416 Sep 08 j 17:11	16° <del>✕</del> 51'00	0°-47'-43	opposition	424 Oct 11 j 03:43	19° <del>Υ</del> 13'28	0°-35'-25
min. Earth dist.	416 Sep 07 j 21:15	16° <del>✕</del> 53'01	19.00088 AU	min. Earth dist.	424 Oct 10 j 18:41	19° <del>Υ</del> 14'24	18.73749 AU
direct	416 Nov 22 j 17:27	14° <del>✕</del> 54'20		direct	424 Dec 24 j 18:06	17° <del>Υ</del> 15'26	
conjunction	417 Mar 08 j 06:34	18° <del>✕</del> 47'27	0°-42'-52	conjunction	425 Apr 10 j 11:33	21° <del>Υ</del> 14'06	0°-30'-56
minimum elong	417 Mar 08 j 06:34	18° <del>✕</del> 47'27	0°42'52	minimum elong	425 Apr 10 j 11:33	21° <del>Υ</del> 14'06	0°30'58
max. Earth dist.	417 Mar 09 j 03:26	18° <del>✕</del> 50'25	20.99176 AU	max. Earth dist.	425 Apr 10 j 19:58	21° <del>Υ</del> 15'18	20.71214 AU
retrograde	417 Jun 27 j 06:19	22° <del>✕</del> 50'33		retrograde	425 Jul 30 j 19:04	25° <del>Υ</del> 21'34	
min. Earth dist.	417 Sep 12 j 05:01	20° <del>✕</del> 52'36	18.98249 AU	opposition	425 Oct 15 j 11:54	23° <del>Υ</del> 20'46	0°-32'-56
opposition	417 Sep 13 j 00:06	20° <del>✕</del> 50'40	0°-46'-57	min. Earth dist.	425 Oct 15 j 04:49	23° <del>Υ</del> 21'30	18.68602 AU
direct	417 Nov 26 j 22:32	18° <del>✕</del> 53'55		direct	425 Dec 29 j 01:39	21° <del>Υ</del> 22'24	
conjunction	418 Mar 12 j 14:06	22° <del>✕</del> 47'27	0°-42'-5	conjunction	426 Apr 15 j 00:10	25° <del>Υ</del> 22'04	0°-28'-36
minimum elong	418 Mar 12 j 14:06	22° <del>✕</del> 47'27	0°42'06	minimum elong	426 Apr 15 j 00:10	25° <del>Υ</del> 22'04	0°28'37
max. Earth dist.	418 Mar 13 j 11:04	22° <del>✕</del> 50'27	20.97158 AU	max. Earth dist.	426 Apr 15 j 08:00	25° <del>Υ</del> 23'12	20.65928 AU
retrograde	418 Jul 01 j 15:48	26° <del>✕</del> 50'59		retrograde	426 Aug 04 j 06:29	29° <del>Υ</del> 30'11	
opposition	418 Sep 17 j 07:03	24° <del>✕</del> 51'02	0°-45'-58	opposition	426 Oct 19 j 20:11	27° <del>Υ</del> 29'13	0°-30'-16
min. Earth dist.	418 Sep 16 j 12:57	24° <del>✕</del> 52'53	18.96043 AU	min. Earth dist.	426 Oct 19 j 14:11	27° <del>Υ</del> 29'50	18.63186 AU
direct	418 Dec 01 j 03:39	22° <del>✕</del> 54'14		direct	427 Jan 02 j 10:18	25° <del>Υ</del> 30'30	
conjunction	419 Mar 16 j 22:03	26° <del>✕</del> 48'16	0°-41'-5	conjunction	427 Apr 19 j 13:18	29° <del>Υ</del> 31'14	0°-26'-7
minimum elong	419 Mar 16 j 22:03	26° <del>✕</del> 48'16	0°41'06	minimum elong	427 Apr 19 j 13:18	29° <del>Υ</del> 31'14	0°26'08
max. Earth dist.	419 Mar 17 j 16:53	26° <del>✕</del> 50'57	20.94777 AU	max. Earth dist.	427 Apr 19 j 18:15	29° <del>Υ</del> 31'56	20.60412 AU
	419 May 20 j 00:36	0° <del>Υ</del>			427 Apr 27 j 20:19	0° <del>♄</del>	
retrograde	419 Jul 06 j 01:58	0° <del>Υ</del> 52'17		retrograde	427 Aug 08 j 18:47	3° <del>♄</del> 40'02	
	419 Aug 23 j 03:19	30° <del>♁</del> <del>✕</del>		opposition	427 Oct 24 j 04:57	1° <del>♄</del> 38'52	0°-27'-26
opposition	419 Sep 21 j 14:08	28° <del>✕</del> 52'17	0°-44'-46	min. Earth dist.	427 Oct 24 j 00:58	1° <del>♄</del> 39'17	18.57576 AU
min. Earth dist.	419 Sep 20 j 21:22	28° <del>✕</del> 54'00	18.93460 AU		427 Dec 09 j 16:34	30° <del>♁</del> <del>Υ</del>	
direct	419 Dec 05 j 08:28	26° <del>✕</del> 55'22		direct	428 Jan 06 j 18:46	29° <del>Υ</del> 39'47	
	420 Mar 05 j 15:08	0° <del>Υ</del>			428 Feb 03 j 13:26	0° <del>♄</del>	
conjunction	420 Mar 20 j 06:50	0° <del>Υ</del> 50'01	0°-39'-53	conjunction	428 Apr 23 j 03:22	3° <del>♄</del> 41'41	0°-23'-28
minimum elong	420 Mar 20 j 06:50	0° <del>Υ</del> 50'01	0°39'54	minimum elong	428 Apr 23 j 03:22	3° <del>♄</del> 41'41	0°23'29
max. Earth dist.	420 Mar 21 j 01:17	0° <del>Υ</del> 52'39	20.91977 AU	max. Earth dist.	428 Apr 23 j 07:43	3° <del>♄</del> 42'19	20.54714 AU
retrograde	420 Jul 09 j 12:30	4° <del>Υ</del> 54'33		retrograde	428 Aug 12 j 07:25	7° <del>♄</del> 51'11	
opposition	420 Sep 24 j 21:10	2° <del>Υ</del> 54'29	0°-43'-20	opposition	428 Oct 27 j 13:56	5° <del>♄</del> 49'53	0°-24'-27
min. Earth dist.	420 Sep 24 j 05:45	2° <del>Υ</del> 56'04	18.90433 AU	min. Earth dist.	428 Oct 27 j 10:52	5° <del>♄</del> 50'12	18.51804 AU
direct	420 Dec 08 j 14:44	0° <del>Υ</del> 57'27		direct	429 Jan 10 j 04:16	3° <del>♄</del> 50'27	
conjunction	421 Mar 24 j 16:05	4° <del>Υ</del> 52'47	0°-38'-29	conjunction	429 Apr 27 j 17:58	7° <del>♄</del> 53'33	0°-20'-42
minimum elong	421 Mar 24 j 16:05	4° <del>Υ</del> 52'47	0°38'30	minimum elong	429 Apr 27 j 17:59	7° <del>♄</del> 53'33	0°20'43
max. Earth dist.	421 Mar 25 j 07:51	4° <del>Υ</del> 55'02	20.88734 AU	max. Earth dist.	429 Apr 27 j 19:29	7° <del>♄</del> 53'46	20.48894 AU
retrograde	421 Jul 13 j 22:49	8° <del>Υ</del> 57'52		retrograde	429 Aug 16 j 20:36	12° <del>♄</del> 03'48	
opposition	421 Sep 29 j 04:36	6° <del>Υ</del> 57'43	0°-41'-40	opposition	429 Oct 31 j 23:33	10° <del>♄</del> 02'21	0°-21'-19
min. Earth dist.	421 Sep 28 j 14:53	6° <del>Υ</del> 59'07	18.86956 AU	min. Earth dist.	429 Oct 31 j 22:32	10° <del>♄</del> 02'28	18.45942 AU
direct	421 Dec 12 j 19:59	5° <del>Υ</del> 00'30		direct	430 Jan 14 j 13:24	8° <del>♄</del> 02'35	
conjunction	422 Mar 29 j 02:01	8° <del>Υ</del> 56'34	0°-36'-53	conjunction	430 May 02 j 09:32	12° <del>♄</del> 06'58	0°-17'-48
minimum elong	422 Mar 29 j 02:01	8° <del>Υ</del> 56'34	0°36'53	minimum elong	430 May 02 j 09:32	12° <del>♄</del> 06'58	0°17'50
max. Earth dist.	422 Mar 29 j 17:05	8° <del>Υ</del> 58'44	20.85014 AU	max. Earth dist.	430 May 02 j 10:29	12° <del>♄</del> 07'06	20.42993 AU
retrograde	422 Jul 18 j 09:58	13° <del>Υ</del> 02'13			430 Jun 25 j 14:59	15° <del>♄</del>	
opposition	422 Oct 03 j 12:10	11° <del>Υ</del> 01'57	0°-39'-48	retrograde	430 Aug 21 j 11:14	16° <del>♄</del> 18'00	



	430 Oct 18 j 19:28	15° <b>♄</b>		min. Earth dist.	436 Nov 30 j 20:59	10° <b>♊</b> 18'55	18.02838 AU
opposition	430 Nov 05 j 09:36	14° <b>♄</b> 16'27	0°-18'-2	direct	437 Feb 13 j 05:28	8° <b>♊</b> 17'51	
min. Earth dist.	430 Nov 05 j 09:24	14° <b>♄</b> 16'28	18.39998 AU				
direct	431 Jan 19 j 00:12	12° <b>♄</b> 16'21		conjunction	437 Jun 02 j 23:34	12° <b>♊</b> 32'28	0°05'00
	431 Apr 13 j 07:34	15° <b>♄</b>		minimum elong	437 Jun 02 j 23:35	12° <b>♊</b> 32'28	0°04'59
				behind sun begin	437 Jun 02 j 16:59	12° <b>♊</b> 31'30	
conjunction	431 May 07 j 01:57	16° <b>♄</b> 22'05	0°-14'-48	behind sun end	437 Jun 03 j 06:10	12° <b>♊</b> 33'25	
minimum elong	431 May 07 j 01:57	16° <b>♄</b> 22'05	0°14'48	max. Earth dist.	437 Jun 02 j 09:13	12° <b>♊</b> 30'19	19.99640 AU
behind sun begin	431 May 06 j 23:32	16° <b>♄</b> 21'44		retrograde	437 Sep 21 j 09:36	16° <b>♊</b> 49'05	
behind sun end	431 May 07 j 04:21	16° <b>♄</b> 22'25		opposition	437 Dec 05 j 01:22	14° <b>♊</b> 47'03	0°07'22
max. Earth dist.	431 May 06 j 23:56	16° <b>♄</b> 21'47	20.37025 AU	min. Earth dist.	437 Dec 05 j 14:10	14° <b>♊</b> 45'40	17.96433 AU
retrograde	431 Aug 26 j 01:35	20° <b>♄</b> 33'55		direct	438 Feb 17 j 20:22	12° <b>♊</b> 44'29	
opposition	431 Nov 09 j 20:10	18° <b>♄</b> 32'17	0°-14'-39				
min. Earth dist.	431 Nov 09 j 22:19	18° <b>♄</b> 32'04	18.34005 AU	conjunction	438 Jun 07 j 22:02	17° <b>♊</b> 00'35	0°08'22
direct	432 Jan 23 j 10:18	16° <b>♄</b> 31'52		minimum elong	438 Jun 07 j 22:02	17° <b>♊</b> 00'35	0°08'22
				behind sun begin	438 Jun 07 j 16:06	16° <b>♊</b> 59'43	
conjunction	432 May 10 j 19:24	20° <b>♄</b> 39'01	0°-11'-41	behind sun end	438 Jun 08 j 03:58	17° <b>♊</b> 01'27	
minimum elong	432 May 10 j 19:25	20° <b>♄</b> 39'01	0°11'42	max. Earth dist.	438 Jun 07 j 06:14	16° <b>♊</b> 58'13	19.93260 AU
behind sun begin	432 May 10 j 14:43	20° <b>♄</b> 38'21		retrograde	438 Sep 26 j 05:31	21° <b>♊</b> 17'55	
behind sun end	432 May 11 j 00:06	20° <b>♄</b> 39'41		opposition	438 Dec 09 j 16:26	19° <b>♊</b> 15'47	0°11'06
max. Earth dist.	432 May 10 j 16:37	20° <b>♄</b> 38'38	20.31003 AU	min. Earth dist.	438 Dec 10 j 05:48	19° <b>♊</b> 14'20	17.90087 AU
retrograde	432 Aug 29 j 18:06	24° <b>♄</b> 51'40		direct	439 Feb 22 j 14:05	17° <b>♊</b> 12'47	
opposition	432 Nov 13 j 07:21	22° <b>♄</b> 50'00	0°-11'-8				
min. Earth dist.	432 Nov 13 j 10:23	22° <b>♄</b> 49'40	18.27944 AU	conjunction	439 Jun 12 j 21:11	21° <b>♊</b> 30'22	0°11'42
direct	433 Jan 26 j 22:35	20° <b>♄</b> 49'17		minimum elong	439 Jun 12 j 21:11	21° <b>♊</b> 30'22	0°11'42
				behind sun begin	439 Jun 12 j 16:29	21° <b>♊</b> 29'41	
conjunction	433 May 15 j 13:28	24° <b>♄</b> 57'53	0°-8'-29	behind sun end	439 Jun 13 j 01:53	21° <b>♊</b> 31'04	
minimum elong	433 May 15 j 13:28	24° <b>♄</b> 57'53	0°08'30	max. Earth dist.	439 Jun 12 j 03:17	21° <b>♊</b> 27'41	19.86962 AU
behind sun begin	433 May 15 j 07:35	24° <b>♄</b> 57'02		retrograde	439 Oct 01 j 00:03	25° <b>♊</b> 48'23	
behind sun end	433 May 15 j 19:21	24° <b>♄</b> 58'43		opposition	439 Dec 14 j 08:14	23° <b>♊</b> 46'08	0°14'48
max. Earth dist.	433 May 15 j 07:40	24° <b>♄</b> 57'03	20.24906 AU	min. Earth dist.	439 Dec 15 j 00:01	23° <b>♊</b> 44'26	17.83875 AU
retrograde	433 Sep 03 j 09:45	29° <b>♄</b> 11'22		direct	440 Feb 27 j 06:24	21° <b>♊</b> 42'44	
opposition	433 Nov 17 j 19:19	27° <b>♄</b> 09'39	0°-7'-32				
min. Earth dist.	433 Nov 18 j 00:57	27° <b>♄</b> 09'03	18.21812 AU	conjunction	440 Jun 16 j 20:55	26° <b>♊</b> 01'46	0°14'59
direct	434 Jan 31 j 10:14	25° <b>♄</b> 08'36		minimum elong	440 Jun 16 j 20:55	26° <b>♊</b> 01'46	0°14'58
				behind sun begin	440 Jun 16 j 18:46	26° <b>♊</b> 01'27	
conjunction	434 May 20 j 08:49	29° <b>♄</b> 18'42	0°-5'-13	behind sun end	440 Jun 16 j 23:04	26° <b>♊</b> 02'05	
minimum elong	434 May 20 j 08:48	29° <b>♄</b> 18'42	0°05'14	max. Earth dist.	440 Jun 16 j 01:37	25° <b>♊</b> 58'51	19.80849 AU
behind sun begin	434 May 20 j 02:15	29° <b>♄</b> 17'45			440 Sep 07 j 05:15	0° <b>♄</b>	
behind sun end	434 May 20 j 15:21	29° <b>♄</b> 19'39		retrograde	440 Oct 04 j 20:38	0° <b>♄</b> 20'27	
max. Earth dist.	434 May 20 j 01:49	29° <b>♄</b> 17'41	20.18725 AU		440 Nov 01 j 15:00	30° <b>♊</b>	
	434 Jun 01 j 00:46	0° <b>♊</b>		opposition	440 Dec 18 j 00:39	28° <b>♊</b> 18'05	0°18'25
retrograde	434 Sep 08 j 03:40	3° <b>♊</b> 33'00		min. Earth dist.	440 Dec 18 j 16:38	28° <b>♊</b> 16'21	17.77878 AU
opposition	434 Nov 22 j 07:42	1° <b>♊</b> 31'14	0°-3'-52	direct	441 Mar 03 j 01:58	26° <b>♊</b> 14'16	
min. Earth dist.	434 Nov 22 j 14:20	1° <b>♊</b> 30'31	18.15575 AU		441 Jun 12 j 07:52	0° <b>♄</b>	
	435 Jan 01 j 15:39	30° <b>♊</b>					
direct	435 Feb 05 j 00:11	29° <b>♄</b> 29'50		conjunction	441 Jun 21 j 21:07	0° <b>♄</b> 34'43	0°18'11
	435 Mar 10 j 22:21	0° <b>♊</b>		minimum elong	441 Jun 21 j 21:07	0° <b>♄</b> 34'43	0°18'12
				max. Earth dist.	441 Jun 21 j 00:37	0° <b>♄</b> 31'37	19.74973 AU
conjunction	435 May 25 j 04:58	3° <b>♊</b> 41'27	0°-1'-52	retrograde	441 Oct 09 j 15:54	4° <b>♄</b> 54'01	
minimum elong	435 May 25 j 04:57	3° <b>♊</b> 41'27	0°01'54	opposition	441 Dec 22 j 17:53	2° <b>♄</b> 51'35	0°21'57
behind sun begin	435 May 24 j 22:10	3° <b>♊</b> 40'28		min. Earth dist.	441 Dec 23 j 11:53	2° <b>♄</b> 49'37	17.72160 AU
behind sun end	435 May 25 j 11:44	3° <b>♊</b> 42'26		direct	442 Mar 07 j 20:02	0° <b>♄</b> 47'24	
max. Earth dist.	435 May 24 j 18:46	3° <b>♊</b> 39'57	20.12433 AU				
retrograde	435 Sep 12 j 20:42	7° <b>♊</b> 56'33		conjunction	442 Jun 26 j 22:01	5° <b>♄</b> 09'13	0°21'18
opposition	435 Nov 26 j 21:02	5° <b>♊</b> 54'43	0°00'-8	minimum elong	442 Jun 26 j 22:01	5° <b>♄</b> 09'13	0°21'17
min. Earth dist.	435 Nov 27 j 06:25	5° <b>♊</b> 53'43	18.09243 AU	max. Earth dist.	442 Jun 25 j 23:59	5° <b>♄</b> 05'52	19.69420 AU
asc. node	435 Dec 12 j 11:31	5° <b>♊</b> 15'19		retrograde	442 Oct 14 j 13:04	9° <b>♄</b> 29'06	
direct	436 Feb 09 j 13:43	3° <b>♊</b> 52'56		opposition	442 Dec 27 j 11:32	7° <b>♄</b> 26'36	0°25'21
				min. Earth dist.	442 Dec 28 j 05:36	7° <b>♄</b> 24'38	17.66789 AU
conjunction	436 May 29 j 01:56	8° <b>♊</b> 06'04	0°01'36	direct	443 Mar 12 j 17:38	5° <b>♄</b> 22'04	
minimum elong	436 May 29 j 01:55	8° <b>♊</b> 06'04	0°01'36				
behind sun begin	436 May 28 j 19:08	8° <b>♊</b> 05'05		conjunction	443 Jul 01 j 23:35	9° <b>♄</b> 45'15	0°24'17
behind sun end	436 May 29 j 08:42	8° <b>♊</b> 07'03		minimum elong	443 Jul 01 j 23:35	9° <b>♄</b> 45'15	0°24'17
max. Earth dist.	436 May 28 j 14:18	8° <b>♊</b> 04'21	20.06060 AU	max. Earth dist.	443 Jul 01 j 01:02	9° <b>♄</b> 41'48	19.64227 AU
retrograde	436 Sep 16 j 15:33	12° <b>♊</b> 21'56		retrograde	443 Oct 19 j 09:15	14° <b>♄</b> 05'40	
opposition	436 Nov 30 j 10:49	10° <b>♊</b> 20'01	0°03'36	opposition	444 Jan 01 j 06:13	12° <b>♄</b> 03'09	0°28'37

min. Earth dist.	444 Jan 02 j 01:53	12° $\mathring{O}$ 01'01	17.61806 AU	minimum elong	451 Aug 10 j 00:57	17° $\mathring{O}$ 21'38	0°41'30
direct	444 Mar 16 j 13:18	9° $\mathring{E}$ 58'21		retrograde	451 Nov 26 j 04:20	21° $\mathring{O}$ 44'27	
max. Earth dist.	444 Jul 05 j 01:16	14° $\mathring{E}$ 19'06	19.59457 AU	opposition	452 Feb 07 j 11:20	19° $\mathring{O}$ 42'18	0°46'52
				min. Earth dist.	452 Feb 08 j 10:27	19° $\mathring{O}$ 39'47	17.36550 AU
conjunction	444 Jul 06 j 01:21	14° $\mathring{E}$ 22'47	0°27'08	direct	452 Apr 23 j 15:18	17° $\mathring{O}$ 36'05	
minimum elong	444 Jul 06 j 01:20	14° $\mathring{E}$ 22'47	0°27'08	max. Earth dist.	452 Aug 13 j 01:00	22° $\mathring{O}$ 03'02	19.35799 AU
retrograde	444 Oct 23 j 07:40	18° $\mathring{E}$ 43'44					
opposition	445 Jan 05 j 01:26	16° $\mathring{E}$ 41'14	0°31'43	conjunction	452 Aug 14 j 04:20	22° $\mathring{O}$ 07'19	0°42'31
min. Earth dist.	445 Jan 05 j 21:04	16° $\mathring{E}$ 39'06	17.57254 AU	minimum elong	452 Aug 14 j 04:20	22° $\mathring{O}$ 07'19	0°42'31
direct	445 Mar 21 j 12:39	14° $\mathring{E}$ 36'11		retrograde	452 Nov 30 j 02:49	26° $\mathring{O}$ 30'06	
max. Earth dist.	445 Jul 10 j 03:55	18° $\mathring{E}$ 58'11	19.55110 AU	opposition	453 Feb 11 j 11:27	24° $\mathring{O}$ 27'57	0°47'51
				min. Earth dist.	453 Feb 12 j 10:53	24° $\mathring{O}$ 25'24	17.35271 AU
conjunction	445 Jul 11 j 03:52	19° $\mathring{E}$ 01'51	0°29'50	direct	453 Apr 28 j 17:19	22° $\mathring{O}$ 21'37	
minimum elong	445 Jul 11 j 03:52	19° $\mathring{E}$ 01'51	0°29'49	max. Earth dist.	453 Aug 18 j 05:31	26° $\mathring{O}$ 49'00	19.34773 AU
retrograde	445 Oct 28 j 05:15	23° $\mathring{E}$ 23'16					
opposition	446 Jan 09 j 21:24	21° $\mathring{E}$ 20'51	0°34'37	conjunction	453 Aug 19 j 07:42	26° $\mathring{O}$ 53'07	0°43'15
min. Earth dist.	446 Jan 10 j 18:25	21° $\mathring{E}$ 18'33	17.53122 AU	minimum elong	453 Aug 19 j 07:42	26° $\mathring{O}$ 53'07	0°43'15
direct	446 Mar 26 j 10:00	19° $\mathring{E}$ 15'34			453 Oct 13 j 02:11	0° $\mathring{O}$	
max. Earth dist.	446 Jul 15 j 05:00	23° $\mathring{E}$ 38'26	19.51187 AU	retrograde	453 Dec 05 j 03:19	1° $\mathring{O}$ 15'46	
					454 Jan 29 j 06:35	30° $\mathring{R}$ $\mathring{O}$	
conjunction	446 Jul 16 j 06:43	23° $\mathring{E}$ 42'24	0°32'20	opposition	454 Feb 16 j 11:41	29° $\mathring{O}$ 13'38	0°48'30
minimum elong	446 Jul 16 j 06:43	23° $\mathring{E}$ 42'24	0°32'21	min. Earth dist.	454 Feb 17 j 10:04	29° $\mathring{O}$ 11'12	17.34498 AU
retrograde	446 Nov 02 j 04:44	28° $\mathring{E}$ 04'15		direct	454 May 03 j 21:28	27° $\mathring{O}$ 07'15	
opposition	447 Jan 14 j 18:04	26° $\mathring{E}$ 01'53	0°37'19		454 Jul 28 j 15:28	0° $\mathring{O}$	
min. Earth dist.	447 Jan 15 j 15:20	25° $\mathring{E}$ 59'34	17.49403 AU	max. Earth dist.	454 Aug 23 j 08:49	1° $\mathring{O}$ 34'47	19.34274 AU
direct	447 Mar 31 j 10:03	23° $\mathring{E}$ 56'25					
max. Earth dist.	447 Jul 20 j 08:48	28° $\mathring{E}$ 20'24	19.47647 AU	conjunction	454 Aug 24 j 10:41	1° $\mathring{O}$ 38'50	0°43'41
				minimum elong	454 Aug 24 j 10:41	1° $\mathring{O}$ 38'50	0°43'41
conjunction	447 Jul 21 j 10:05	28° $\mathring{E}$ 24'19	0°34'39	retrograde	454 Dec 10 j 01:18	6° $\mathring{O}$ 01'19	
minimum elong	447 Jul 21 j 10:05	28° $\mathring{E}$ 24'19	0°34'39	opposition	455 Feb 21 j 12:27	3° $\mathring{O}$ 59'13	0°48'50
	447 Aug 16 j 16:22	0° $\mathring{O}$		min. Earth dist.	455 Feb 22 j 10:57	3° $\mathring{O}$ 56'46	17.34293 AU
retrograde	447 Nov 07 j 04:08	2° $\mathring{O}$ 46'30		direct	455 May 08 j 23:53	1° $\mathring{O}$ 52'47	
opposition	448 Jan 19 j 15:35	0° $\mathring{O}$ 44'13	0°39'47				
min. Earth dist.	448 Jan 20 j 13:50	0° $\mathring{O}$ 41'47	17.46054 AU	conjunction	455 Aug 29 j 13:07	6° $\mathring{O}$ 24'21	0°43'49
	448 Feb 05 j 21:19	30° $\mathring{R}$ $\mathring{E}$		minimum elong	455 Aug 29 j 13:07	6° $\mathring{O}$ 24'21	0°43'49
direct	448 Apr 04 j 09:24	28° $\mathring{E}$ 38'35		max. Earth dist.	455 Aug 28 j 12:33	6° $\mathring{O}$ 20'29	19.34369 AU
	448 May 31 j 02:54	0° $\mathring{O}$		retrograde	455 Dec 15 j 01:35	10° $\mathring{O}$ 46'35	
max. Earth dist.	448 Jul 24 j 10:32	3° $\mathring{O}$ 03'12	19.44488 AU	opposition	456 Feb 26 j 13:21	8° $\mathring{O}$ 44'32	0°48'48
				min. Earth dist.	456 Feb 27 j 09:58	8° $\mathring{O}$ 42'17	17.34687 AU
conjunction	448 Jul 25 j 13:34	3° $\mathring{O}$ 07'24	0°36'44	direct	456 May 13 j 05:02	6° $\mathring{O}$ 38'08	
minimum elong	448 Jul 25 j 13:34	3° $\mathring{O}$ 07'24	0°36'45				
retrograde	448 Nov 11 j 03:54	7° $\mathring{O}$ 29'53		conjunction	456 Sep 02 j 15:10	11° $\mathring{O}$ 09'31	0°43'39
opposition	449 Jan 23 j 13:40	5° $\mathring{O}$ 27'38	0°41'59	minimum elong	456 Sep 02 j 15:10	11° $\mathring{O}$ 09'31	0°43'39
min. Earth dist.	449 Jan 24 j 12:14	5° $\mathring{O}$ 25'10	17.43097 AU	max. Earth dist.	456 Sep 01 j 15:59	11° $\mathring{O}$ 05'53	19.35077 AU
direct	449 Apr 09 j 09:49	3° $\mathring{O}$ 21'50		retrograde	456 Dec 18 j 23:07	15° $\mathring{O}$ 31'28	
				opposition	457 Mar 02 j 14:26	13° $\mathring{O}$ 29'29	0°48'27
conjunction	449 Jul 30 j 17:19	7° $\mathring{O}$ 51'28	0°38'35	min. Earth dist.	457 Mar 03 j 10:53	13° $\mathring{O}$ 27'16	17.35724 AU
minimum elong	449 Jul 30 j 17:18	7° $\mathring{O}$ 51'28	0°38'36	direct	457 May 18 j 07:19	11° $\mathring{O}$ 23'11	
max. Earth dist.	449 Jul 29 j 14:59	7° $\mathring{O}$ 47'22	19.41708 AU				
retrograde	449 Nov 16 j 04:23	12° $\mathring{O}$ 14'08		conjunction	457 Sep 07 j 16:40	15° $\mathring{O}$ 54'17	0°43'11
opposition	450 Jan 28 j 12:25	10° $\mathring{O}$ 11'56	0°43'55	minimum elong	457 Sep 07 j 16:40	15° $\mathring{O}$ 54'17	0°43'11
min. Earth dist.	450 Jan 29 j 11:25	10° $\mathring{O}$ 09'25	17.40502 AU	max. Earth dist.	457 Sep 06 j 18:35	15° $\mathring{O}$ 50'49	19.36440 AU
direct	450 Apr 14 j 11:06	8° $\mathring{O}$ 05'59		retrograde	457 Dec 23 j 23:18	20° $\mathring{O}$ 15'54	
				opposition	458 Mar 07 j 15:37	18° $\mathring{O}$ 14'02	0°47'46
conjunction	450 Aug 04 j 21:06	12° $\mathring{O}$ 36'17	0°40'11	min. Earth dist.	458 Mar 08 j 09:46	18° $\mathring{O}$ 12'05	17.37386 AU
minimum elong	450 Aug 04 j 21:06	12° $\mathring{O}$ 36'17	0°40'10	direct	458 May 23 j 12:08	16° $\mathring{O}$ 07'53	
max. Earth dist.	450 Aug 03 j 17:20	12° $\mathring{O}$ 31'57	19.39309 AU				
	450 Sep 14 j 05:57	15° $\mathring{O}$		conjunction	458 Sep 12 j 17:44	20° $\mathring{O}$ 38'36	0°42'26
retrograde	450 Nov 21 j 03:30	16° $\mathring{O}$ 59'04		minimum elong	458 Sep 12 j 17:44	20° $\mathring{O}$ 38'36	0°42'26
	451 Feb 01 j 07:04	15° $\mathring{R}$ $\mathring{O}$		max. Earth dist.	458 Sep 11 j 21:45	20° $\mathring{O}$ 35'27	19.38408 AU
opposition	451 Feb 02 j 11:36	14° $\mathring{O}$ 56'53	0°45'33	retrograde	458 Dec 28 j 21:02	24° $\mathring{O}$ 59'48	
min. Earth dist.	451 Feb 03 j 11:02	14° $\mathring{O}$ 54'20	17.38314 AU	opposition	459 Mar 12 j 17:01	22° $\mathring{O}$ 58'07	0°46'46
direct	451 Apr 19 j 12:19	12° $\mathring{O}$ 50'47		min. Earth dist.	459 Mar 13 j 10:53	22° $\mathring{O}$ 56'11	17.39647 AU
	451 Jul 01 j 09:31	15° $\mathring{O}$		direct	459 May 28 j 14:02	20° $\mathring{O}$ 52'11	
max. Earth dist.	451 Aug 08 j 22:10	17° $\mathring{O}$ 17'27	19.37330 AU				
				conjunction	459 Sep 17 j 18:07	25° $\mathring{O}$ 22'21	0°41'23
conjunction	451 Aug 10 j 00:57	17° $\mathring{O}$ 21'38	0°41'30	minimum elong	459 Sep 17 j 18:07	25° $\mathring{O}$ 22'21	0°41'24

max. Earth dist.	459 Sep 16 j 23:01	25° $\overline{m}$ 19'21	19.40963 AU	minimum elong	467 Oct 24 j 19:37	2° $\overline{m}$ 33'18	0°24'19
retrograde	460 Jan 02 j 21:18	29° $\overline{m}$ 43'07		max. Earth dist.	467 Oct 24 j 14:06	2° $\overline{m}$ 32'27	19.75273 AU
opposition	460 Mar 16 j 18:22	27° $\overline{m}$ 41'36	0°45'27	retrograde	468 Feb 08 j 19:23	6° $\overline{m}$ 48'35	
min. Earth dist.	460 Mar 17 j 09:52	27° $\overline{m}$ 39'56	17.42460 AU	opposition	468 Apr 23 j 23:10	4° $\overline{m}$ 47'58	0°25'26
direct	460 Jun 01 j 17:54	25° $\overline{m}$ 35'55		min. Earth dist.	468 Apr 24 j 02:46	4° $\overline{m}$ 47'35	17.78008 AU
	460 Sep 20 j 07:26	0° $\underline{a}$		direct	468 Jul 10 j 06:56	2° $\overline{m}$ 44'33	
conjunction	460 Sep 21 j 17:56	0° $\underline{a}$ 05'26	0°40'05	conjunction	468 Oct 28 j 12:50	7° $\overline{m}$ 04'49	0°21'22
minimum elong	460 Sep 21 j 17:56	0° $\underline{a}$ 05'26	0°40'04	minimum elong	468 Oct 28 j 12:50	7° $\overline{m}$ 04'49	0°21'23
max. Earth dist.	460 Sep 21 j 01:21	0° $\underline{a}$ 02'49	19.44025 AU	max. Earth dist.	468 Oct 28 j 10:19	7° $\overline{m}$ 04'26	19.80826 AU
retrograde	461 Jan 06 j 18:55	4° $\underline{a}$ 25'42		retrograde	469 Feb 12 j 12:57	11° $\overline{m}$ 19'16	
opposition	461 Mar 21 j 19:51	2° $\underline{a}$ 24'21	0°43'50	opposition	469 Apr 28 j 21:49	9° $\overline{m}$ 18'43	0°22'05
min. Earth dist.	461 Mar 22 j 10:57	2° $\underline{a}$ 22'44	17.45748 AU	min. Earth dist.	469 Apr 28 j 23:09	9° $\overline{m}$ 18'34	17.83685 AU
direct	461 Jun 06 j 19:06	0° $\underline{a}$ 18'57		direct	469 Jul 15 j 06:45	7° $\overline{m}$ 15'37	
conjunction	461 Sep 26 j 17:05	4° $\underline{a}$ 47'40	0°38'30	conjunction	469 Nov 02 j 05:02	11° $\overline{m}$ 34'25	0°18'19
minimum elong	461 Sep 26 j 17:05	4° $\underline{a}$ 47'40	0°38'30	minimum elong	469 Nov 02 j 05:02	11° $\overline{m}$ 34'25	0°18'18
max. Earth dist.	461 Sep 26 j 01:02	4° $\underline{a}$ 45'09	19.47535 AU	max. Earth dist.	469 Nov 02 j 03:58	11° $\overline{m}$ 34'15	19.86644 AU
retrograde	462 Jan 11 j 18:44	9° $\underline{a}$ 07'22			470 Jan 05 j 14:44	15° $\overline{m}$	
opposition	462 Mar 26 j 21:00	7° $\underline{a}$ 06'11	0°41'55	retrograde	470 Feb 17 j 05:59	15° $\overline{m}$ 48'02	
min. Earth dist.	462 Mar 27 j 09:53	7° $\underline{a}$ 04'49	17.49454 AU		470 Apr 02 j 15:45	15° $\overline{m}$	
direct	462 Jun 11 j 22:16	5° $\underline{a}$ 01'03		opposition	470 May 03 j 19:54	13° $\overline{m}$ 47'34	0°18'37
conjunction	462 Oct 01 j 15:42	9° $\underline{a}$ 28'53	0°36'40	min. Earth dist.	470 May 03 j 19:30	13° $\overline{m}$ 47'37	17.89652 AU
minimum elong	462 Oct 01 j 15:42	9° $\underline{a}$ 28'53	0°36'39	direct	470 Jul 20 j 03:49	11° $\overline{m}$ 44'49	
max. Earth dist.	462 Oct 01 j 02:20	9° $\underline{a}$ 26'48	19.51427 AU		470 Oct 20 j 21:02	15° $\overline{m}$	
retrograde	463 Jan 16 j 15:44	13° $\underline{a}$ 47'57		conjunction	470 Nov 06 j 20:31	16° $\overline{m}$ 02'09	0°15'10
opposition	463 Mar 31 j 22:20	11° $\underline{a}$ 46'56	0°39'44	minimum elong	470 Nov 06 j 20:31	16° $\overline{m}$ 02'09	0°15'10
min. Earth dist.	463 Apr 01 j 10:31	11° $\underline{a}$ 45'38	17.53513 AU	behind sun begin	470 Nov 06 j 18:05	16° $\overline{m}$ 01'47	
direct	463 Jun 16 j 23:34	9° $\underline{a}$ 42'06		behind sun end	470 Nov 06 j 22:57	16° $\overline{m}$ 02'31	
conjunction	463 Oct 06 j 13:16	14° $\underline{a}$ 08'53	0°34'36	max. Earth dist.	470 Nov 06 j 22:19	16° $\overline{m}$ 02'25	19.92750 AU
minimum elong	463 Oct 06 j 13:16	14° $\underline{a}$ 08'53	0°34'35	retrograde	471 Feb 21 j 23:13	20° $\overline{m}$ 14'56	
max. Earth dist.	463 Oct 06 j 00:27	14° $\underline{a}$ 06'53	19.55657 AU	opposition	471 May 08 j 17:25	18° $\overline{m}$ 14'36	0°15'04
retrograde	464 Jan 21 j 14:14	18° $\underline{a}$ 27'18		min. Earth dist.	471 May 08 j 14:18	18° $\overline{m}$ 14'56	17.95875 AU
opposition	464 Apr 04 j 23:18	16° $\underline{a}$ 26'23	0°37'17	direct	471 Jul 25 j 02:03	16° $\overline{m}$ 12'15	
min. Earth dist.	464 Apr 05 j 09:22	16° $\underline{a}$ 25'19	17.57894 AU	conjunction	471 Nov 11 j 10:56	20° $\overline{m}$ 28'06	0°11'57
direct	464 Jun 21 j 02:35	14° $\underline{a}$ 21'50		minimum elong	471 Nov 11 j 10:56	20° $\overline{m}$ 28'06	0°11'58
conjunction	464 Oct 10 j 10:18	18° $\underline{a}$ 47'30	0°32'18	behind sun begin	471 Nov 11 j 06:20	20° $\overline{m}$ 27'25	
minimum elong	464 Oct 10 j 10:18	18° $\underline{a}$ 47'30	0°32'18	behind sun end	471 Nov 11 j 15:31	20° $\overline{m}$ 28'47	
max. Earth dist.	464 Oct 10 j 00:15	18° $\underline{a}$ 45'56	19.60179 AU	max. Earth dist.	471 Nov 11 j 14:27	20° $\overline{m}$ 28'37	19.99093 AU
retrograde	465 Jan 25 j 09:47	23° $\underline{a}$ 05'10		retrograde	472 Feb 26 j 15:09	24° $\overline{m}$ 40'07	
opposition	465 Apr 09 j 23:51	21° $\underline{a}$ 04'22	0°34'37	opposition	472 May 12 j 14:24	22° $\overline{m}$ 39'55	0°11'27
min. Earth dist.	465 Apr 10 j 08:52	21° $\underline{a}$ 03'25	17.62540 AU	min. Earth dist.	472 May 12 j 09:53	22° $\overline{m}$ 40'23	18.02327 AU
direct	465 Jun 26 j 04:06	19° $\underline{a}$ 00'07		direct	472 Jul 28 j 20:52	20° $\overline{m}$ 37'59	
conjunction	465 Oct 15 j 06:20	23° $\underline{a}$ 24'32	0°29'49	conjunction	472 Nov 15 j 00:46	24° $\overline{m}$ 52'22	0°08'42
minimum elong	465 Oct 15 j 06:20	23° $\underline{a}$ 24'32	0°29'49	minimum elong	472 Nov 15 j 00:45	24° $\overline{m}$ 52'22	0°08'41
max. Earth dist.	465 Oct 14 j 20:52	23° $\underline{a}$ 23'04	19.64962 AU	behind sun begin	472 Nov 14 j 19:03	24° $\overline{m}$ 51'31	
retrograde	466 Jan 30 j 06:28	27° $\underline{a}$ 41'27		behind sun end	472 Nov 15 j 06:28	24° $\overline{m}$ 53'13	
opposition	466 Apr 15 j 00:05	25° $\underline{a}$ 40'43	0°31'44	max. Earth dist.	472 Nov 15 j 06:44	24° $\overline{m}$ 53'16	20.05631 AU
min. Earth dist.	466 Apr 15 j 07:12	25° $\underline{a}$ 39'58	17.67448 AU	retrograde	473 Mar 02 j 07:47	29° $\overline{m}$ 03'35	
direct	466 Jul 01 j 06:03	23° $\underline{a}$ 36'44		opposition	473 May 17 j 10:30	27° $\overline{m}$ 03'35	0°07'47
conjunction	466 Oct 20 j 01:30	27° $\underline{a}$ 59'51	0°27'09	min. Earth dist.	473 May 17 j 03:19	27° $\overline{m}$ 04'19	18.08919 AU
minimum elong	466 Oct 20 j 01:30	27° $\underline{a}$ 59'51	0°27'10	direct	473 Aug 02 j 17:12	25° $\overline{m}$ 02'05	
max. Earth dist.	466 Oct 19 j 18:56	27° $\underline{a}$ 58'50	19.69993 AU	conjunction	473 Nov 19 j 13:45	29° $\overline{m}$ 15'01	0°05'25
	466 Nov 22 j 10:19	0° $\overline{m}$		minimum elong	473 Nov 19 j 13:45	29° $\overline{m}$ 15'01	0°05'26
retrograde	467 Feb 04 j 00:39	2° $\overline{m}$ 15'57		behind sun begin	473 Nov 19 j 07:26	29° $\overline{m}$ 14'05	
opposition	467 Apr 19 j 23:56	0° $\overline{m}$ 15'17	0°28'40	behind sun end	473 Nov 19 j 20:05	29° $\overline{m}$ 15'58	
min. Earth dist.	467 Apr 20 j 05:22	0° $\overline{m}$ 14'43	17.72590 AU	max. Earth dist.	473 Nov 19 j 21:24	29° $\overline{m}$ 16'10	20.12270 AU
	467 Apr 26 j 02:06	30° $\overline{m}$			473 Dec 01 j 22:05	0° $\overline{m}$	
direct	467 Jul 06 j 07:20	28° $\overline{m}$ 11'36		retrograde	474 Mar 06 j 22:47	3° $\overline{m}$ 25'30	
	467 Sep 10 j 21:14	0° $\overline{m}$		opposition	474 May 22 j 06:20	1° $\overline{m}$ 25'40	0°04'07
conjunction	467 Oct 24 j 19:37	2° $\overline{m}$ 33'18	0°24'19	min. Earth dist.	474 May 21 j 22:11	1° $\overline{m}$ 26'30	18.15595 AU
					474 Jun 29 j 23:49	30° $\overline{m}$	
				direct	474 Aug 07 j 10:27	29° $\overline{m}$ 24'37	

	474 Sep 13 j 18:29	0°♄		retrograde	481 Apr 05 j 23:31	3°♄14'50	
				min. Earth dist.	481 Jun 21 j 11:39	1°♄17'31	18.58823 AU
conjunction	474 Nov 24 j 01:59	3°♄36'06	0°02'06	opposition	481 Jun 22 j 06:14	1°♄15'39	0°-20'-33
minimum elong	474 Nov 24 j 01:58	3°♄36'06	0°02'05		481 Jul 26 j 05:10	30°♄	
behind sun begin	474 Nov 23 j 19:25	3°♄35'08		direct	481 Sep 07 j 01:24	29°♄17'03	
behind sun end	474 Nov 24 j 08:30	3°♄37'03			481 Oct 18 j 07:48	0°♄	
max. Earth dist.	474 Nov 24 j 11:39	3°♄37'33	20.18957 AU				
retrograde	475 Mar 11 j 14:47	7°♄45'50		conjunction	481 Dec 22 j 21:49	3°♄19'00	0°-20'00
opposition	475 May 27 j 01:28	5°♄46'10	0°00'26	minimum elong	481 Dec 22 j 21:49	3°♄19'00	0°20'02
min. Earth dist.	475 May 26 j 14:40	5°♄47'16	18.22266 AU	max. Earth dist.	481 Dec 23 j 17:03	3°♄21'50	20.61483 AU
desc. node	475 Jul 08 j 23:57	4°♄13'51		retrograde	482 Apr 10 j 09:02	7°♄23'59	
direct	475 Aug 12 j 05:06	3°♄45'34		opposition	482 Jun 26 j 20:41	5°♄24'48	0°-23'-41
				min. Earth dist.	482 Jun 26 j 01:54	5°♄26'41	18.64110 AU
conjunction	475 Nov 28 j 13:35	7°♄55'36	0°-1'-18	direct	482 Sep 11 j 13:50	3°♄26'27	
minimum elong	475 Nov 28 j 13:35	7°♄55'36	0°01'19				
behind sun begin	475 Nov 28 j 07:03	7°♄54'39		conjunction	482 Dec 27 j 04:58	7°♄27'11	0°-22'-46
behind sun end	475 Nov 28 j 20:08	7°♄56'34		minimum elong	482 Dec 27 j 04:58	7°♄27'11	0°22'47
max. Earth dist.	475 Nov 29 j 00:53	7°♄57'18	20.25595 AU	max. Earth dist.	482 Dec 28 j 01:06	7°♄30'09	20.66675 AU
retrograde	476 Mar 15 j 05:05	12°♄04'38		retrograde	483 Apr 14 j 21:12	11°♄31'37	
opposition	476 May 30 j 19:59	10°♄05'07	0°-3'-13	opposition	483 Jul 01 j 10:16	9°♄32'25	0°-26'-40
min. Earth dist.	476 May 30 j 08:39	10°♄06'16	18.28872 AU	min. Earth dist.	483 Jun 30 j 13:16	9°♄34'32	18.69212 AU
direct	476 Aug 15 j 20:59	8°♄04'55		direct	483 Sep 16 j 02:22	7°♄34'18	
conjunction	476 Dec 02 j 00:34	12°♄13'33	0°-4'-37	conjunction	483 Dec 31 j 11:50	11°♄33'56	0°-25'-24
minimum elong	476 Dec 02 j 00:34	12°♄13'33	0°04'38	minimum elong	483 Dec 31 j 11:50	11°♄33'56	0°25'25
behind sun begin	476 Dec 01 j 18:10	12°♄12'37		max. Earth dist.	484 Jan 01 j 09:39	11°♄37'08	20.71669 AU
behind sun end	476 Dec 02 j 06:58	12°♄14'30		retrograde	484 Apr 18 j 05:36	15°♄37'50	
max. Earth dist.	476 Dec 02 j 13:17	12°♄15'28	20.32135 AU	opposition	484 Jul 04 j 23:08	13°♄38'40	0°-29'-31
retrograde	477 Mar 19 j 20:06	16°♄21'52		min. Earth dist.	484 Jul 04 j 02:03	13°♄40'47	18.74119 AU
opposition	477 Jun 04 j 13:46	14°♄22'29	0°-6'-51	direct	484 Sep 19 j 12:33	11°♄40'48	
min. Earth dist.	477 Jun 04 j 00:00	14°♄23'53	18.35325 AU				
direct	477 Aug 20 j 14:09	12°♄22'41		conjunction	485 Jan 03 j 18:13	15°♄39'23	0°-27'-54
				minimum elong	485 Jan 03 j 18:13	15°♄39'23	0°27'55
conjunction	477 Dec 06 j 10:51	16°♄29'56	0°-7'-50	max. Earth dist.	485 Jan 04 j 16:36	15°♄42'40	20.76476 AU
minimum elong	477 Dec 06 j 10:51	16°♄29'56	0°07'52	retrograde	485 Apr 22 j 17:03	19°♄42'50	
behind sun begin	477 Dec 06 j 04:57	16°♄29'04		opposition	485 Jul 09 j 11:24	17°♄43'43	0°-32'-11
behind sun end	477 Dec 06 j 16:45	16°♄30'47		min. Earth dist.	485 Jul 08 j 12:25	17°♄46'01	18.78818 AU
max. Earth dist.	477 Dec 07 j 01:02	16°♄32'03	20.38481 AU	direct	485 Sep 23 j 23:14	15°♄46'06	
retrograde	478 Mar 24 j 09:07	20°♄37'32					
opposition	478 Jun 09 j 07:05	18°♄38'16	0°-10'-25	conjunction	486 Jan 08 j 00:12	19°♄43'44	0°-30'-14
min. Earth dist.	478 Jun 08 j 17:04	18°♄39'41	18.41573 AU	minimum elong	486 Jan 08 j 00:12	19°♄43'44	0°30'15
direct	478 Aug 25 j 05:21	16°♄38'50		max. Earth dist.	486 Jan 09 j 00:10	19°♄47'14	20.81044 AU
				retrograde	486 Apr 27 j 01:05	23°♄46'48	
conjunction	478 Dec 10 j 20:34	20°♄44'41	0°-11'-1	opposition	486 Jul 13 j 23:16	21°♄47'43	0°-34'-41
minimum elong	478 Dec 10 j 20:34	20°♄44'41	0°11'01	min. Earth dist.	486 Jul 13 j 00:21	21°♄50'01	18.83262 AU
behind sun begin	478 Dec 10 j 15:36	20°♄43'58		direct	486 Sep 28 j 08:04	19°♄50'22	
behind sun end	478 Dec 11 j 01:32	20°♄45'25					
max. Earth dist.	478 Dec 11 j 11:47	20°♄46'58	20.44613 AU	conjunction	487 Jan 12 j 06:00	23°♄47'06	0°-32'-25
retrograde	479 Mar 28 j 23:20	24°♄51'37		minimum elong	487 Jan 12 j 05:59	23°♄47'06	0°32'27
opposition	479 Jun 13 j 23:33	22°♄52'24	0°-13'-54	max. Earth dist.	487 Jan 13 j 06:13	23°♄50'38	20.85356 AU
min. Earth dist.	479 Jun 13 j 07:14	22°♄54'03	18.47578 AU	retrograde	487 May 01 j 11:59	27°♄49'50	
direct	479 Aug 29 j 20:58	20°♄53'17		min. Earth dist.	487 Jul 17 j 10:03	25°♄53'15	18.87425 AU
				opposition	487 Jul 18 j 10:26	25°♄50'49	0°-37'00
conjunction	479 Dec 15 j 05:36	24°♄57'48	0°-14'-6	direct	487 Oct 02 j 17:08	23°♄53'42	
minimum elong	479 Dec 15 j 05:35	24°♄57'48	0°14'08				
behind sun begin	479 Dec 15 j 02:14	24°♄57'19		conjunction	488 Jan 16 j 11:40	27°♄49'40	0°-34'-26
behind sun end	479 Dec 15 j 08:57	24°♄58'17		minimum elong	488 Jan 16 j 11:40	27°♄49'40	0°34'27
max. Earth dist.	479 Dec 15 j 22:17	25°♄00'17	20.50482 AU	max. Earth dist.	488 Jan 17 j 13:07	27°♄53'22	20.89339 AU
retrograde	480 Apr 01 j 10:27	29°♄04'03			488 Feb 24 j 21:32	0°≈	
opposition	480 Jun 17 j 15:25	27°♄04'52	0°-17'-17	retrograde	488 May 04 j 20:14	1°≈52'07	
min. Earth dist.	480 Jun 16 j 23:01	27°♄06'32	18.53323 AU		488 Jul 19 j 00:37	30°♄	
direct	480 Sep 02 j 11:17	25°♄06'02		opposition	488 Jul 21 j 21:13	29°♄53'09	0°-39'-8
				min. Earth dist.	488 Jul 20 j 21:17	29°♄55'33	18.91230 AU
conjunction	480 Dec 18 j 14:00	29°♄09'14	0°-17'-6	direct	488 Oct 06 j 00:57	27°♄56'16	
minimum elong	480 Dec 18 j 14:00	29°♄09'14	0°17'07		488 Dec 17 j 09:57	0°≈	
max. Earth dist.	480 Dec 19 j 07:33	29°♄11'50	20.56103 AU				
	481 Jan 01 j 21:36	0°♄		conjunction	489 Jan 19 j 17:07	1°≈51'32	0°-36'-17

minimum elong	489 Jan 19 j 17:07	1°51'32	0°36'19		496 Nov 18 j 02:56	0°	
max. Earth dist.	489 Jan 20 j 18:18	1°55'11	20.92950 AU				
retrograde	489 May 09 j 06:24	5°53'45		conjunction	497 Feb 20 j 13:01	3°49'23	0°-43'-59
min. Earth dist.	489 Jul 25 j 06:32	3°57'19	18.94633 AU	minimum elong	497 Feb 20 j 13:01	3°49'23	0°43'59
opposition	489 Jul 26 j 07:25	3°54'50	0°-41'-4	max. Earth dist.	497 Feb 21 j 12:26	3°52'44	21.04097 AU
direct	489 Oct 10 j 09:00	1°58'09		retrograde	497 Jun 11 j 02:40	7°51'23	
				min. Earth dist.	497 Aug 27 j 05:56	5°54'09	19.03889 AU
conjunction	490 Jan 23 j 22:38	5°52'48	0°-37'-57	opposition	497 Aug 28 j 03:58	5°51'56	0°-48'-38
minimum elong	490 Jan 23 j 22:38	5°52'48	0°37'58	direct	497 Nov 11 j 10:23	3°55'32	
max. Earth dist.	490 Jan 25 j 00:38	5°56'34	20.96118 AU				
retrograde	490 May 13 j 14:45	9°54'50		conjunction	498 Feb 24 j 19:00	7°48'02	0°-44'00
opposition	490 Jul 30 j 17:26	7°55'57	0°-42'-48	minimum elong	498 Feb 24 j 19:00	7°48'02	0°44'01
min. Earth dist.	490 Jul 29 j 17:15	7°58'22	18.97567 AU	max. Earth dist.	498 Feb 25 j 18:47	7°51'26	21.03497 AU
direct	490 Oct 14 j 16:02	5°59'28		retrograde	498 Jun 15 j 10:36	11°50'14	
				opposition	498 Sep 01 j 11:13	9°50'41	0°-48'-32
conjunction	491 Jan 28 j 04:01	9°53'33	0°-39'-25	min. Earth dist.	498 Aug 31 j 14:02	9°52'50	19.03114 AU
minimum elong	491 Jan 28 j 04:01	9°53'33	0°39'26	direct	498 Nov 15 j 15:43	7°54'15	
max. Earth dist.	491 Jan 29 j 05:17	9°57'12	20.98805 AU				
retrograde	491 May 18 j 00:32	13°55'28		conjunction	499 Mar 01 j 01:10	11°46'52	0°-43'-49
min. Earth dist.	491 Aug 03 j 02:18	11°59'02	18.99991 AU	minimum elong	499 Mar 01 j 01:10	11°46'52	0°43'50
opposition	491 Aug 04 j 02:57	11°56'35	0°-44'-18	max. Earth dist.	499 Mar 01 j 23:36	11°50'05	21.02560 AU
direct	491 Oct 18 j 23:29	10°00'12		retrograde	499 Jun 19 j 20:21	15°49'21	
				opposition	499 Sep 05 j 18:19	13°49'43	0°-48'-13
conjunction	492 Feb 01 j 09:36	13°53'50	0°-40'-42	min. Earth dist.	499 Sep 04 j 21:29	13°51'50	19.01997 AU
minimum elong	492 Feb 01 j 09:36	13°53'50	0°40'43	direct	499 Nov 19 j 20:02	11°53'13	
max. Earth dist.	492 Feb 02 j 11:14	13°57'32	21.00942 AU				
	492 Feb 20 j 18:20	15°		conjunction	500 Mar 04 j 07:52	15°46'05	0°-43'-25
retrograde	492 May 21 j 08:18	17°55'38		minimum elong	500 Mar 04 j 07:52	15°46'05	0°43'25
opposition	492 Aug 07 j 11:58	15°56'43	0°-45'-36	max. Earth dist.	500 Mar 05 j 06:23	15°49'18	21.01256 AU
min. Earth dist.	492 Aug 06 j 12:20	15°59'05	19.01851 AU	retrograde	500 Jun 23 j 04:33	19°48'52	
	492 Sep 01 j 04:20	15°		min. Earth dist.	500 Sep 08 j 05:28	17°51'11	19.00507 AU
direct	492 Oct 22 j 05:43	14°00'25		opposition	500 Sep 09 j 01:15	17°49'11	0°-47'-39
	492 Dec 10 j 03:41	15°		direct	500 Nov 23 j 01:30	15°52'38	
conjunction	493 Feb 04 j 15:02	17°53'39	0°-41'-47	conjunction	501 Mar 08 j 14:51	19°45'49	0°-42'-48
minimum elong	493 Feb 04 j 15:02	17°53'39	0°41'47	minimum elong	501 Mar 08 j 14:51	19°45'49	0°42'50
max. Earth dist.	493 Feb 05 j 15:36	17°57'11	21.02536 AU	max. Earth dist.	501 Mar 09 j 11:40	19°48'47	20.99597 AU
retrograde	493 May 25 j 17:44	21°55'24		retrograde	501 Jun 27 j 15:09	23°49'00	
opposition	493 Aug 11 j 20:40	19°56'24	0°-46'-40	opposition	501 Sep 13 j 08:18	21°49'13	0°-46'-52
min. Earth dist.	493 Aug 10 j 20:51	19°58'47	19.03174 AU	min. Earth dist.	501 Sep 12 j 13:12	21°51'10	18.98656 AU
direct	493 Oct 26 j 12:36	18°00'08		direct	501 Nov 27 j 06:15	19°52'36	
conjunction	494 Feb 08 j 20:22	21°53'02	0°-42'-39	conjunction	502 Mar 12 j 22:21	23°46'12	0°-41'-59
minimum elong	494 Feb 08 j 20:22	21°53'02	0°42'40	minimum elong	502 Mar 12 j 22:21	23°46'12	0°42'00
max. Earth dist.	494 Feb 09 j 21:25	21°56'38	21.03593 AU	max. Earth dist.	502 Mar 13 j 19:03	23°49'09	20.97541 AU
retrograde	494 May 30 j 00:59	25°54'46		retrograde	502 Jul 01 j 23:57	27°49'48	
min. Earth dist.	494 Aug 15 j 06:10	23°57'57	19.03983 AU	opposition	502 Sep 17 j 15:25	25°49'59	0°-45'-51
opposition	494 Aug 16 j 05:05	23°55'40	0°-47'-31	min. Earth dist.	502 Sep 16 j 21:38	25°51'47	18.96385 AU
direct	494 Oct 30 j 18:10	21°59'23		direct	502 Dec 01 j 11:33	23°53'16	
conjunction	495 Feb 13 j 01:49	25°52'02	0°-43'-18	conjunction	503 Mar 17 j 06:30	27°47'22	0°-40'-58
minimum elong	495 Feb 13 j 01:49	25°52'02	0°43'18	minimum elong	503 Mar 17 j 06:30	27°47'22	0°40'59
max. Earth dist.	495 Feb 14 j 01:52	25°55'29	21.04180 AU	max. Earth dist.	503 Mar 18 j 01:01	27°50'01	20.95065 AU
retrograde	495 Jun 03 j 10:12	29°53'48			503 Apr 27 j 01:26	0°	
opposition	495 Aug 20 j 12:56	27°54'35	0°-48'-7	retrograde	503 Jul 06 j 11:09	1°51'27	
min. Earth dist.	495 Aug 19 j 14:00	27°56'52	19.04353 AU		503 Sep 18 j 11:16	30°	
direct	495 Nov 04 j 00:13	25°58'16		opposition	503 Sep 21 j 22:28	29°51'32	0°-44'-36
				min. Earth dist.	503 Sep 21 j 05:57	29°53'13	18.93680 AU
conjunction	496 Feb 17 j 07:26	29°50'47	0°-43'-45	direct	503 Dec 05 j 17:21	27°54'41	
minimum elong	496 Feb 17 j 07:26	29°50'47	0°43'46		504 Feb 16 j 15:03	0°	
max. Earth dist.	496 Feb 18 j 07:56	29°54'17	21.04329 AU				
	496 Feb 19 j 23:50	0°		conjunction	504 Mar 20 j 15:22	1°49'23	0°-39'-44
retrograde	496 Jun 06 j 17:34	3°52'37		minimum elong	504 Mar 20 j 15:22	1°49'23	0°39'44
opposition	496 Aug 23 j 20:35	1°53'17	0°-48'-29	max. Earth dist.	504 Mar 21 j 09:15	1°51'56	20.92113 AU
min. Earth dist.	496 Aug 22 j 22:30	1°55'30	19.04303 AU	retrograde	504 Jul 09 j 20:22	5°53'57	
	496 Oct 27 j 06:49	30°		opposition	504 Sep 25 j 05:46	3°53'56	0°-43'-8
direct	496 Nov 07 j 05:25	29°56'56		min. Earth dist.	504 Sep 24 j 14:48	3°55'28	18.90476 AU

direct	504 Dec 08 j 22:50	1°♈56'55		direct	513 Jan 10 j 12:40	4°♏48'46	
conjunction	505 Mar 25 j 00:35	5°♈52'15	0°-38'-17	conjunction	513 Apr 28 j 02:13	8°♏51'56	0°-20'-18
minimum elong	505 Mar 25 j 00:35	5°♈52'15	0°38'18	minimum elong	513 Apr 28 j 02:13	8°♏51'56	0°20'20
max. Earth dist.	505 Mar 25 j 15:54	5°♈54'26	20.88675 AU	max. Earth dist.	513 Apr 28 j 03:59	8°♏52'11	20.48324 AU
retrograde	505 Jul 14 j 07:43	9°♈57'21		retrograde	513 Aug 17 j 05:41	13°♏02'20	
opposition	505 Sep 29 j 13:17	7°♈57'11	0°-41'-26	opposition	513 Nov 01 j 08:32	11°♏00'52	0°-20'-51
min. Earth dist.	505 Sep 28 j 23:49	7°♈58'34	18.86790 AU	min. Earth dist.	513 Nov 01 j 07:13	11°♏01'01	18.45395 AU
direct	505 Dec 13 j 05:43	5°♈59'57		direct	514 Jan 14 j 21:45	9°♏01'08	
conjunction	506 Mar 29 j 10:38	9°♈56'00	0°-36'-39	conjunction	514 May 02 j 17:58	13°♏05'38	0°-17'-23
minimum elong	506 Mar 29 j 10:38	9°♈56'00	0°36'41	minimum elong	514 May 02 j 17:58	13°♏05'38	0°17'24
max. Earth dist.	506 Mar 30 j 01:11	9°♈58'05	20.84747 AU	max. Earth dist.	514 May 02 j 19:08	13°♏05'48	20.42468 AU
retrograde	506 Jul 18 j 17:30	14°♈01'38			514 Jun 05 j 12:52	15°♏	
opposition	506 Oct 03 j 20:49	12°♈01'19	0°-39'-32	retrograde	514 Aug 21 j 20:22	17°♏16'50	
min. Earth dist.	506 Oct 03 j 08:55	12°♈02'32	18.82624 AU	opposition	514 Nov 05 j 18:34	15°♏15'19	0°-17'-34
direct	506 Dec 17 j 12:09	10°♈03'48		min. Earth dist.	514 Nov 05 j 18:19	15°♏15'20	18.39486 AU
conjunction	507 Apr 02 j 21:10	14°♈00'38	0°-34'-49		514 Nov 11 j 19:59	15°♏	
minimum elong	507 Apr 02 j 21:10	14°♈00'38	0°34'50	direct	515 Jan 19 j 08:42	13°♏15'17	
max. Earth dist.	507 Apr 03 j 08:58	14°♈02'20	20.80383 AU		515 Mar 25 j 20:44	15°♏	
retrograde	507 Jul 23 j 04:48	18°♈06'51		conjunction	515 May 07 j 10:29	17°♏21'09	0°-14'-21
opposition	507 Oct 08 j 04:34	16°♈06'19	0°-37'-24	minimum elong	515 May 07 j 10:29	17°♏21'09	0°14'23
min. Earth dist.	507 Oct 07 j 18:22	16°♈07'23	18.78055 AU	behind sun begin	515 May 07 j 07:37	17°♏20'45	
direct	507 Dec 21 j 19:20	14°♈08'31		behind sun end	515 May 07 j 13:20	17°♏21'34	
conjunction	508 Apr 06 j 08:22	18°♈06'12	0°-32'-48	max. Earth dist.	515 May 07 j 08:33	17°♏20'53	20.36519 AU
minimum elong	508 Apr 06 j 08:22	18°♈06'12	0°32'50	retrograde	515 Aug 26 j 10:54	21°♏33'12	
max. Earth dist.	508 Apr 06 j 19:32	18°♈07'48	20.75625 AU	opposition	515 Nov 10 j 05:22	19°♏31'37	0°-14'-9
retrograde	508 Jul 26 j 15:40	22°♈13'00		min. Earth dist.	515 Nov 10 j 07:22	19°♏31'25	18.33489 AU
opposition	508 Oct 11 j 12:22	20°♈12'18	0°-35'-5	direct	516 Jan 23 j 19:08	17°♏31'17	
min. Earth dist.	508 Oct 11 j 03:33	20°♈13'13	18.73126 AU	conjunction	516 May 11 j 03:58	21°♏38'36	0°-11'-14
direct	508 Dec 25 j 02:53	18°♈14'10		minimum elong	516 May 11 j 03:58	21°♏38'36	0°11'14
conjunction	509 Apr 10 j 20:03	22°♈12'47	0°-30'-37	behind sun begin	516 May 10 j 23:03	21°♏37'54	
minimum elong	509 Apr 10 j 20:03	22°♈12'47	0°30'38	behind sun end	516 May 11 j 08:52	21°♏39'18	
max. Earth dist.	509 Apr 11 j 04:30	22°♈14'00	20.70564 AU	max. Earth dist.	516 May 11 j 01:13	21°♏38'13	20.30460 AU
retrograde	509 Jul 31 j 03:02	26°♈20'15		retrograde	516 Aug 30 j 03:11	25°♏51'28	
opposition	509 Oct 15 j 20:32	24°♈19'21	0°-32'-35	opposition	516 Nov 13 j 16:39	23°♏49'51	0°-10'-38
min. Earth dist.	509 Oct 15 j 13:22	24°♈20'05	18.67935 AU	min. Earth dist.	516 Nov 13 j 19:46	23°♏49'32	18.27364 AU
direct	509 Dec 29 j 10:09	22°♈20'52		direct	517 Jan 27 j 07:32	21°♏49'12	
conjunction	510 Apr 15 j 08:31	26°♈20'31	0°-28'-16	conjunction	517 May 15 j 22:17	25°♏57'58	0°-8'-1
minimum elong	510 Apr 15 j 08:31	26°♈20'31	0°28'17	minimum elong	517 May 15 j 22:17	25°♏57'58	0°08'02
max. Earth dist.	510 Apr 15 j 16:27	26°♈21'40	20.65252 AU	behind sun begin	517 May 15 j 16:17	25°♏57'06	
retrograde	510 Jul 01 j 12:38	0°♏		behind sun end	517 May 16 j 04:18	25°♏58'50	
	510 Aug 04 j 15:23	0°♏28'39		max. Earth dist.	517 May 15 j 16:15	25°♏57'06	20.24273 AU
	510 Sep 08 j 00:46	30°♏			517 Aug 13 j 14:52	0°♏	
opposition	510 Oct 20 j 04:56	28°♈27'35	0°-29'-53	retrograde	517 Sep 03 j 18:59	0°♏11'41	
min. Earth dist.	510 Oct 19 j 22:57	28°♈28'12	18.62512 AU		517 Sep 25 j 04:05	30°♏	
direct	511 Jan 02 j 18:53	26°♈28'47		opposition	517 Nov 18 j 04:41	28°♏09'59	0°-7'-1
	511 Apr 11 j 09:36	0°♏		min. Earth dist.	517 Nov 18 j 10:21	28°♏09'23	18.21118 AU
conjunction	511 Apr 19 j 21:40	0°♏29'32	0°-25'-45	direct	518 Jan 31 j 19:20	26°♏08'59	
minimum elong	511 Apr 19 j 21:40	0°♏29'32	0°25'45		518 May 15 j 07:41	0°♏	
max. Earth dist.	511 Apr 20 j 02:47	0°♏30'16	20.59747 AU	conjunction	518 May 20 j 17:41	0°♏19'14	0°-4'-44
retrograde	511 Aug 09 j 03:12	4°♏38'23		minimum elong	518 May 20 j 17:42	0°♏19'14	0°04'45
opposition	511 Oct 24 j 13:37	2°♏37'09	0°-27'-2	behind sun begin	518 May 20 j 11:05	0°♏18'17	
min. Earth dist.	511 Oct 24 j 09:26	2°♏37'35	18.56929 AU	behind sun end	518 May 21 j 00:18	0°♏20'11	
direct	512 Jan 07 j 02:49	0°♏38'01		max. Earth dist.	518 May 20 j 10:29	0°♏18'12	20.17956 AU
conjunction	512 Apr 23 j 11:43	4°♏39'57	0°-23'-6	retrograde	518 Sep 08 j 13:12	4°♏33'45	
minimum elong	512 Apr 23 j 11:43	4°♏39'57	0°23'06	opposition	518 Nov 22 j 17:17	2°♏31'58	0°-3'-20
max. Earth dist.	512 Apr 23 j 16:17	4°♏40'36	20.54090 AU	min. Earth dist.	518 Nov 23 j 00:03	2°♏31'15	18.14727 AU
retrograde	512 Aug 12 j 16:40	8°♏49'33		direct	519 Feb 05 j 09:44	0°♏30'35	
opposition	512 Oct 27 j 22:47	6°♏48'12	0°-24'-1	conjunction	519 May 25 j 13:50	4°♏42'19	0°-1'-22
min. Earth dist.	512 Oct 27 j 19:36	6°♏48'32	18.51206 AU	minimum elong	519 May 25 j 13:50	4°♏42'19	0°01'23
				behind sun begin	519 May 25 j 07:03	4°♏41'20	

behind sun end	519 May 25 j 20:37	4°II43'18		direct	526 Mar 08 j 05:55	1°☾48'01	
max. Earth dist.	519 May 25 j 03:21	4°II40'46	20.11507 AU	max. Earth dist.	526 Jun 26 j 09:39	6°☾06'39	19.68519 AU
retrograde	519 Sep 13 j 05:38	8°II57'37					
asc. node	519 Oct 19 j 21:50	8°II23'43		conjunction	526 Jun 27 j 06:58	6°☾09'54	0°21'42
opposition	519 Nov 27 j 06:35	6°II55'43	0°00'23	minimum elong	526 Jun 27 j 06:58	6°☾09'54	0°21'43
min. Earth dist.	519 Nov 27 j 16:00	6°II54'43	18.08243 AU	retrograde	526 Oct 14 j 22:43	10°☾29'53	
direct	520 Feb 09 j 22:50	4°II53'54		opposition	526 Dec 27 j 21:17	8°☾27'18	0°25'48
				min. Earth dist.	526 Dec 28 j 14:50	8°☾25'23	17.65970 AU
conjunction	520 May 29 j 10:51	9°II07'08	0°02'06	direct	527 Mar 13 j 02:53	6°☾22'43	
minimum elong	520 May 29 j 10:51	9°II07'08	0°02'05	max. Earth dist.	527 Jul 01 j 10:33	10°☾42'36	19.63491 AU
behind sun begin	520 May 29 j 04:04	9°II06'09					
behind sun end	520 May 29 j 17:37	9°II08'07		conjunction	527 Jul 02 j 08:32	10°☾45'57	0°24'41
max. Earth dist.	520 May 28 j 23:13	9°II05'24	20.04998 AU	minimum elong	527 Jul 02 j 08:31	10°☾45'57	0°24'41
retrograde	520 Sep 17 j 01:24	13°II23'10		retrograde	527 Oct 19 j 19:05	15°☾06'30	
opposition	520 Nov 30 j 20:24	11°II21'09	0°04'09	opposition	528 Jan 01 j 16:00	13°☾03'57	0°29'03
min. Earth dist.	520 Dec 01 j 06:36	11°II20'03	18.01720 AU	min. Earth dist.	528 Jan 02 j 11:15	13°☾01'51	17.61152 AU
direct	521 Feb 13 j 15:05	9°II18'55		direct	528 Mar 16 j 22:55	10°☾59'07	
				max. Earth dist.	528 Jul 05 j 11:10	15°☾20'04	19.58884 AU
conjunction	521 Jun 03 j 08:22	13°II33'36	0°05'29				
minimum elong	521 Jun 03 j 08:21	13°II33'36	0°05'30	conjunction	528 Jul 06 j 10:33	15°☾23'39	0°27'31
behind sun begin	521 Jun 03 j 01:50	13°II32'39		minimum elong	528 Jul 06 j 10:33	15°☾23'39	0°27'31
behind sun end	521 Jun 03 j 14:53	13°II34'33		retrograde	528 Oct 23 j 17:50	19°☾44'45	
max. Earth dist.	521 Jun 02 j 18:00	13°II31'28	19.98483 AU	opposition	529 Jan 05 j 11:16	17°☾42'15	0°32'07
retrograde	521 Sep 21 j 18:23	17°II50'23		min. Earth dist.	529 Jan 06 j 06:28	17°☾40'09	17.56750 AU
opposition	521 Dec 05 j 10:59	15°II48'13	0°07'54	direct	529 Mar 21 j 21:13	15°☾37'12	
min. Earth dist.	521 Dec 05 j 23:43	15°II46'51	17.95240 AU				
direct	522 Feb 18 j 05:52	13°II45'32		conjunction	529 Jul 11 j 13:11	20°☾02'59	0°30'11
				minimum elong	529 Jul 11 j 13:11	20°☾02'59	0°30'12
conjunction	522 Jun 08 j 06:54	18°II01'42	0°08'50	max. Earth dist.	529 Jul 10 j 13:38	19°☾59'22	19.54664 AU
minimum elong	522 Jun 08 j 06:53	18°II01'42	0°08'50	retrograde	529 Oct 28 j 15:42	24°☾24'34	
behind sun begin	522 Jun 08 j 01:05	18°II00'51		opposition	530 Jan 10 j 07:29	22°☾22'08	0°35'01
behind sun end	522 Jun 08 j 12:41	18°II02'33		min. Earth dist.	530 Jan 11 j 04:17	22°☾19'52	17.52720 AU
max. Earth dist.	522 Jun 07 j 15:24	17°II59'23	19.92050 AU	direct	530 Mar 26 j 19:21	20°☾16'54	
retrograde	522 Sep 26 j 14:48	22°II19'10					
opposition	522 Dec 10 j 01:57	20°II16'52	0°11'38	conjunction	530 Jul 16 j 16:15	24°☾43'50	0°32'41
min. Earth dist.	522 Dec 10 j 15:13	20°II15'26	17.88870 AU	minimum elong	530 Jul 16 j 16:15	24°☾43'50	0°32'40
direct	523 Feb 22 j 23:41	18°II13'46		max. Earth dist.	530 Jul 15 j 14:53	24°☾39'55	19.50816 AU
				retrograde	530 Nov 02 j 15:06	29°☾05'50	
conjunction	523 Jun 13 j 06:01	22°II31'23	0°12'09	opposition	531 Jan 15 j 04:13	27°☾03'28	0°37'41
minimum elong	523 Jun 13 j 06:01	22°II31'23	0°12'09	min. Earth dist.	531 Jan 16 j 01:11	27°☾01'11	17.49054 AU
behind sun begin	523 Jun 13 j 01:33	22°II30'44		direct	531 Mar 31 j 19:30	24°☾58'03	
behind sun end	523 Jun 13 j 10:29	22°II32'03					
max. Earth dist.	523 Jun 12 j 12:22	22°II28'44	19.85756 AU	conjunction	531 Jul 21 j 19:49	29°☾26'02	0°34'58
retrograde	523 Oct 01 j 08:43	26°II49'31		minimum elong	531 Jul 21 j 19:49	29°☾26'02	0°34'58
opposition	523 Dec 14 j 17:51	24°II47'07	0°15'18	max. Earth dist.	531 Jul 20 j 18:40	29°☾22'09	19.47311 AU
min. Earth dist.	523 Dec 15 j 09:23	24°II45'26	17.82691 AU		531 Jul 30 j 23:10	0°☾	
direct	524 Feb 27 j 16:19	22°II43'34		retrograde	531 Nov 07 j 13:58	3°☾48'22	
max. Earth dist.	524 Jun 16 j 10:57	26°II59'49	19.79698 AU	opposition	532 Jan 20 j 01:55	1°☾46'05	0°40'07
				min. Earth dist.	532 Jan 21 j 00:02	1°☾43'40	17.45726 AU
conjunction	524 Jun 17 j 05:37	27°II02'38	0°15'25		532 Mar 08 j 10:17	30°☾	
minimum elong	524 Jun 17 j 05:37	27°II02'38	0°15'26	direct	532 Apr 04 j 19:11	29°☾40'29	
behind sun begin	524 Jun 17 j 04:15	27°II02'26			532 May 01 j 21:37	0°☾	
behind sun end	524 Jun 17 j 06:59	27°II02'50					
	524 Aug 09 j 16:12	0°☾		conjunction	532 Jul 25 j 23:16	4°☾09'23	0°37'01
retrograde	524 Oct 05 j 05:43	1°☾21'25		minimum elong	532 Jul 25 j 23:16	4°☾09'23	0°37'01
	524 Dec 02 j 08:18	30°☾II		max. Earth dist.	532 Jul 24 j 20:22	4°☾05'12	19.44159 AU
opposition	524 Dec 18 j 10:16	29°II18'55	0°18'55	retrograde	532 Nov 11 j 14:13	8°☾32'00	
min. Earth dist.	524 Dec 19 j 01:54	29°II17'13	17.76774 AU	opposition	533 Jan 24 j 00:03	6°☾29'45	0°42'17
direct	525 Mar 03 j 11:45	27°II15'00		min. Earth dist.	533 Jan 24 j 22:22	6°☾27'19	17.42761 AU
	525 May 26 j 11:19	0°☾		direct	533 Apr 09 j 20:27	4°☾23'58	
max. Earth dist.	525 Jun 21 j 09:55	1°☾32'26	19.73925 AU	max. Earth dist.	533 Jul 30 j 00:56	8°☾49'35	19.41367 AU
conjunction	525 Jun 22 j 05:59	1°☾35'28	0°18'37	conjunction	533 Jul 31 j 03:11	8°☾53'40	0°38'50
minimum elong	525 Jun 22 j 05:58	1°☾35'28	0°18'36	minimum elong	533 Jul 31 j 03:11	8°☾53'40	0°38'50
retrograde	525 Oct 10 j 00:40	5°☾54'52		retrograde	533 Nov 16 j 13:49	13°☾16'26	
opposition	525 Dec 23 j 03:27	3°☾52'18	0°22'25	opposition	534 Jan 28 j 22:42	11°☾14'14	0°44'11
min. Earth dist.	525 Dec 23 j 21:04	3°☾50'23	17.71184 AU	min. Earth dist.	534 Jan 29 j 21:40	11°☾11'44	17.40156 AU

direct	534 Apr 14 j 21:06	9°♏08'17		retrograde	541 Dec 24 j 09:44	21°♏18'47	
max. Earth dist.	534 Aug 04 j 03:16	13°♏34'19	19.38964 AU	opposition	542 Mar 08 j 01:42	19°♏17'00	0°47'42
				min. Earth dist.	542 Mar 08 j 19:41	19°♏15'03	17.37687 AU
conjunction	534 Aug 05 j 06:59	13°♏38'39	0°40'23	direct	542 May 23 j 21:36	17°♏10'55	
minimum elong	534 Aug 05 j 06:59	13°♏38'39	0°40'24	max. Earth dist.	542 Sep 12 j 07:49	21°♏38'30	19.38753 AU
	534 Aug 27 j 07:14	15°♏					
retrograde	534 Nov 21 j 14:21	18°♏01'32		conjunction	542 Sep 13 j 03:46	21°♏41'38	0°42'21
opposition	535 Feb 02 j 21:55	15°♏59'20	0°45'46	minimum elong	542 Sep 13 j 03:46	21°♏41'38	0°42'21
min. Earth dist.	535 Feb 03 j 21:05	15°♏56'49	17.37971 AU	retrograde	542 Dec 29 j 07:49	26°♏02'53	
	535 Feb 26 j 12:10	15°♏		opposition	543 Mar 13 j 03:15	24°♏01'15	0°46'39
direct	535 Apr 19 j 22:55	13°♏53'13		min. Earth dist.	543 Mar 13 j 21:03	23°♏59'20	17.40015 AU
	535 Jun 10 j 01:21	15°♏		direct	543 May 28 j 23:37	21°♏55'23	
max. Earth dist.	535 Aug 09 j 08:06	18°♏19'58	19.36993 AU	max. Earth dist.	543 Sep 17 j 09:13	26°♏22'34	19.41343 AU
conjunction	535 Aug 10 j 10:41	18°♏24'07	0°41'40	conjunction	543 Sep 18 j 04:11	26°♏25'33	0°41'16
minimum elong	535 Aug 10 j 10:41	18°♏24'07	0°41'40	minimum elong	543 Sep 18 j 04:11	26°♏25'33	0°41'16
retrograde	535 Nov 26 j 14:03	22°♏47'01			543 Nov 23 j 06:41	0°♎	
opposition	536 Feb 07 j 21:35	20°♏44'50	0°47'02	retrograde	544 Jan 03 j 07:55	0°♎46'21	
min. Earth dist.	536 Feb 08 j 20:33	20°♏42'20	17.36225 AU		544 Feb 14 j 17:43	30°♏	
direct	536 Apr 24 j 00:50	18°♏38'36		opposition	544 Mar 17 j 04:40	28°♏44'52	0°45'18
max. Earth dist.	536 Aug 13 j 10:52	23°♏05'35	19.35494 AU	min. Earth dist.	544 Mar 17 j 20:13	28°♏43'12	17.42835 AU
				direct	544 Jun 02 j 03:40	26°♏39'15	
conjunction	536 Aug 14 j 14:07	23°♏09'52	0°42'39		544 Sep 03 j 18:24	0°♎	
minimum elong	536 Aug 14 j 14:07	23°♏09'52	0°42'40	max. Earth dist.	544 Sep 21 j 11:31	1°♎06'08	19.44384 AU
retrograde	536 Nov 30 j 13:43	27°♏32'43					
opposition	537 Feb 11 j 21:31	25°♏30'32	0°47'59	conjunction	544 Sep 22 j 04:16	1°♎08'46	0°39'55
min. Earth dist.	537 Feb 12 j 20:37	25°♏28'01	17.34994 AU	minimum elong	544 Sep 22 j 04:16	1°♎08'46	0°39'56
direct	537 Apr 29 j 03:04	23°♏24'11		retrograde	545 Jan 07 j 05:42	5°♎29'01	
				opposition	545 Mar 22 j 06:06	3°♎27'43	0°43'38
conjunction	537 Aug 19 j 17:26	27°♏55'42	0°43'21	min. Earth dist.	545 Mar 22 j 21:28	3°♎26'04	17.46085 AU
minimum elong	537 Aug 19 j 17:26	27°♏55'42	0°43'21	direct	545 Jun 07 j 05:32	1°♎22'20	
max. Earth dist.	537 Aug 18 j 15:34	27°♏51'38	19.34530 AU	max. Earth dist.	545 Sep 26 j 11:23	5°♎48'31	19.47838 AU
	537 Sep 22 j 22:50	0°♏					
retrograde	537 Dec 05 j 13:20	2°♏18'25		conjunction	545 Sep 27 j 03:36	5°♎51'03	0°38'18
opposition	538 Feb 16 j 21:51	0°♏16'15	0°48'36	minimum elong	545 Sep 27 j 03:36	5°♎51'03	0°38'18
min. Earth dist.	538 Feb 17 j 19:57	0°♏13'50	17.34298 AU	retrograde	546 Jan 12 j 04:53	10°♎10'44	
	538 Feb 23 j 03:26	30°♏		opposition	546 Mar 27 j 07:27	8°♎09'34	0°41'41
direct	538 May 04 j 06:50	28°♏09'50		min. Earth dist.	546 Mar 27 j 20:33	8°♎08'11	17.49717 AU
	538 Jul 10 j 01:40	0°♏		direct	546 Jun 12 j 08:48	6°♎04'28	
conjunction	538 Aug 24 j 20:18	2°♏41'26	0°43'45	conjunction	546 Oct 02 j 02:15	10°♎32'16	0°36'26
minimum elong	538 Aug 24 j 20:18	2°♏41'26	0°43'45	minimum elong	546 Oct 02 j 02:15	10°♎32'16	0°36'26
max. Earth dist.	538 Aug 23 j 18:41	2°♏37'25	19.34124 AU	max. Earth dist.	546 Oct 01 j 12:36	10°♎30'08	19.51641 AU
retrograde	538 Dec 10 j 11:49	7°♏03'58		retrograde	547 Jan 17 j 02:11	14°♎51'19	
opposition	539 Feb 21 j 22:33	5°♏01'50	0°48'52	opposition	547 Apr 01 j 08:49	12°♎50'17	0°39'27
min. Earth dist.	539 Feb 22 j 20:34	4°♏59'27	17.34206 AU	min. Earth dist.	547 Apr 01 j 21:22	12°♎48'57	17.53679 AU
direct	539 May 09 j 09:45	2°♏55'25		direct	547 Jun 17 j 10:44	10°♎45'27	
				max. Earth dist.	547 Oct 06 j 10:54	15°♎10'10	19.55770 AU
conjunction	539 Aug 29 j 22:52	7°♏26'59	0°43'50				
minimum elong	539 Aug 29 j 22:51	7°♏26'59	0°43'51	conjunction	547 Oct 07 j 00:00	15°♎12'13	0°34'20
max. Earth dist.	539 Aug 28 j 22:45	7°♏23'11	19.34349 AU	minimum elong	547 Oct 07 j 00:00	15°♎12'13	0°34'19
retrograde	539 Dec 15 j 11:31	11°♏49'16		retrograde	548 Jan 22 j 00:06	19°♎30'35	
opposition	540 Feb 26 j 23:27	9°♏47'12	0°48'49	opposition	548 Apr 05 j 09:40	17°♎29'40	0°36'58
min. Earth dist.	540 Feb 27 j 19:40	9°♏45'00	17.34741 AU	min. Earth dist.	548 Apr 05 j 19:59	17°♎28'34	17.57959 AU
direct	540 May 13 j 14:22	7°♏40'50		direct	548 Jun 21 j 12:42	15°♎25'06	
max. Earth dist.	540 Sep 02 j 01:55	12°♏08'38	19.35205 AU				
				conjunction	548 Oct 10 j 21:01	19°♎50'44	0°32'00
conjunction	540 Sep 03 j 00:52	12°♏12'14	0°43'38	minimum elong	548 Oct 10 j 21:01	19°♎50'44	0°32'00
minimum elong	540 Sep 03 j 00:52	12°♏12'14	0°43'37	max. Earth dist.	548 Oct 10 j 10:42	19°♎49'08	19.60197 AU
retrograde	540 Dec 19 j 09:41	16°♏34'14		retrograde	549 Jan 25 j 20:33	24°♎08'22	
opposition	541 Mar 03 j 00:37	14°♏32'17	0°48'25	opposition	549 Apr 10 j 10:19	22°♎07'33	0°34'16
min. Earth dist.	541 Mar 03 j 20:38	14°♏30'07	17.35916 AU	min. Earth dist.	549 Apr 10 j 19:41	22°♎06'33	17.62515 AU
direct	541 May 18 j 16:59	12°♏26'02		direct	549 Jun 26 j 14:44	20°♎03'15	
max. Earth dist.	541 Sep 07 j 04:49	16°♏53'44	19.36695 AU				
				conjunction	549 Oct 15 j 16:59	24°♎27'40	0°29'29
conjunction	541 Sep 08 j 02:32	16°♏57'09	0°43'08	minimum elong	549 Oct 15 j 16:59	24°♎27'40	0°29'29
minimum elong	541 Sep 08 j 02:32	16°♏57'09	0°43'08	max. Earth dist.	549 Oct 15 j 07:21	24°♎26'10	19.64903 AU



retrograde	550 Jan 30 j 16:31	28° <del>44</del> '32		max. Earth dist.	556 Nov 15 j 17:26	25° <del>15</del> '57'06	20.06027 AU
opposition	550 Apr 15 j 10:24	26° <del>43</del> '46	0°31'21		557 Feb 13 j 23:35	0° <del>27</del> '	
min. Earth dist.	550 Apr 15 j 17:36	26° <del>43</del> '01	17.67365 AU	retrograde	557 Mar 02 j 18:26	0° <del>27</del> '07'27	
direct	550 Jul 01 j 15:40	24° <del>43</del> '45			557 Mar 19 j 19:44	30° <del>18</del> '	
				opposition	557 May 17 j 20:44	28° <del>18</del> '07'33	0°07'15
conjunction	550 Oct 20 j 12:09	29° <del>42</del> '51	0°26'47	min. Earth dist.	557 May 17 j 13:40	28° <del>18</del> '08'17	18.09324 AU
minimum elong	550 Oct 20 j 12:09	29° <del>42</del> '51	0°26'47	direct	557 Aug 03 j 03:16	26° <del>18</del> '06'08	
max. Earth dist.	550 Oct 20 j 05:36	29° <del>42</del> '01'50	19.69903 AU		557 Nov 14 j 18:55	0° <del>27</del> '	
	550 Nov 04 j 21:37	0° <del>18</del> '					
retrograde	551 Feb 04 j 11:49	3° <del>18</del> '18'55		conjunction	557 Nov 20 j 00:24	0° <del>27</del> '19'07	0°04'55
opposition	551 Apr 20 j 10:12	1° <del>18</del> '18'14	0°28'15	minimum elong	557 Nov 20 j 00:24	0° <del>27</del> '19'07	0°04'55
min. Earth dist.	551 Apr 20 j 15:46	1° <del>18</del> '17'39	17.72506 AU	behind sun begin	557 Nov 19 j 18:01	0° <del>27</del> '18'10	
	551 May 24 j 02:25	30° <del>18</del> ' <del>45</del>		behind sun end	557 Nov 20 j 06:47	0° <del>27</del> '20'04	
direct	551 Jul 06 j 17:21	29° <del>42</del> '14'31		max. Earth dist.	557 Nov 20 j 07:47	0° <del>27</del> '20'13	20.12674 AU
	551 Aug 17 j 23:08	0° <del>18</del> '		retrograde	558 Mar 07 j 09:27	4° <del>27</del> '29'36	
				opposition	558 May 22 j 16:36	2° <del>27</del> '29'51	0°03'33
conjunction	551 Oct 25 j 06:04	3° <del>18</del> '36'13	0°23'56	min. Earth dist.	558 May 22 j 08:32	2° <del>27</del> '30'40	18.15989 AU
minimum elong	551 Oct 25 j 06:04	3° <del>18</del> '36'13	0°23'56	direct	558 Aug 07 j 20:28	0° <del>27</del> '28'51	
max. Earth dist.	551 Oct 25 j 00:40	3° <del>18</del> '35'23	19.75208 AU				
retrograde	552 Feb 09 j 05:58	7° <del>18</del> '51'30		conjunction	558 Nov 24 j 12:48	4° <del>27</del> '40'22	0°01'35
opposition	552 Apr 24 j 09:23	5° <del>18</del> '50'51	0°25'00	minimum elong	558 Nov 24 j 12:48	4° <del>27</del> '40'22	0°01'35
min. Earth dist.	552 Apr 24 j 12:47	5° <del>18</del> '50'30	17.77976 AU	behind sun begin	558 Nov 24 j 06:15	4° <del>27</del> '39'24	
direct	552 Jul 10 j 16:48	3° <del>18</del> '47'26		behind sun end	558 Nov 24 j 19:20	4° <del>27</del> '41'20	
				max. Earth dist.	558 Nov 24 j 22:17	4° <del>27</del> '41'47	20.19329 AU
conjunction	552 Oct 28 j 23:21	8° <del>18</del> '07'44	0°20'58	retrograde	559 Mar 12 j 01:44	8° <del>27</del> '50'04	
minimum elong	552 Oct 28 j 23:21	8° <del>18</del> '07'44	0°20'57	desc. node	559 May 13 j 16:05	7° <del>27</del> '23'51	
max. Earth dist.	552 Oct 28 j 21:04	8° <del>18</del> '07'23	19.80836 AU	opposition	559 May 27 j 11:42	6° <del>27</del> '50'27	0°00'-7
retrograde	553 Feb 12 j 23:43	12° <del>18</del> '22'10		min. Earth dist.	559 May 27 j 01:12	6° <del>27</del> '51'32	18.22611 AU
opposition	553 Apr 29 j 07:52	10° <del>18</del> '21'39	0°21'37	direct	559 Aug 12 j 15:39	4° <del>27</del> '49'52	
min. Earth dist.	553 Apr 29 j 09:09	10° <del>18</del> '21'31	17.83751 AU				
direct	553 Jul 15 j 16:54	8° <del>18</del> '18'35		conjunction	559 Nov 29 j 00:23	8° <del>27</del> '59'55	0°-1'-49
				minimum elong	559 Nov 29 j 00:23	8° <del>27</del> '59'55	0°01'51
conjunction	553 Nov 02 j 15:36	12° <del>18</del> '37'26	0°17'53	behind sun begin	559 Nov 28 j 17:50	8° <del>27</del> '58'57	
minimum elong	553 Nov 02 j 15:36	12° <del>18</del> '37'26	0°17'53	behind sun end	559 Nov 29 j 06:55	9° <del>27</del> '00'52	
max. Earth dist.	553 Nov 02 j 14:39	12° <del>18</del> '37'18	19.86772 AU	max. Earth dist.	559 Nov 29 j 11:10	9° <del>27</del> '01'32	20.25899 AU
	553 Dec 13 j 09:08	15° <del>18</del> '		retrograde	560 Mar 15 j 15:20	13° <del>27</del> '08'52	
retrograde	554 Feb 17 j 16:48	16° <del>18</del> '51'05		opposition	560 May 31 j 06:17	11° <del>27</del> '09'22	0°-3'-47
	554 Apr 30 j 12:02	15° <del>18</del> ' <del>18</del> '		min. Earth dist.	560 May 30 j 19:15	11° <del>27</del> '10'30	18.29128 AU
opposition	554 May 04 j 06:01	14° <del>18</del> '50'40	0°18'07	direct	560 Aug 16 j 07:24	9° <del>27</del> '09'10	
min. Earth dist.	554 May 04 j 05:20	14° <del>18</del> '50'45	17.89840 AU				
direct	554 Jul 20 j 14:07	12° <del>18</del> '47'59		conjunction	560 Dec 02 j 11:24	13° <del>27</del> '17'46	0°-5'-7
	554 Oct 02 j 20:35	15° <del>18</del> '		minimum elong	560 Dec 02 j 11:24	13° <del>27</del> '17'46	0°05'09
				behind sun begin	560 Dec 02 j 05:03	13° <del>27</del> '16'50	
conjunction	554 Nov 07 j 07:01	17° <del>18</del> '05'23	0°14'43	behind sun end	560 Dec 02 j 17:45	13° <del>27</del> '18'41	
minimum elong	554 Nov 07 j 07:00	17° <del>18</del> '05'23	0°14'43	max. Earth dist.	560 Dec 02 j 23:45	13° <del>27</del> '19'37	20.32333 AU
behind sun begin	554 Nov 07 j 04:08	17° <del>18</del> '04'57		retrograde	561 Mar 20 j 06:36	17° <del>27</del> '25'57	
behind sun end	554 Nov 07 j 09:52	17° <del>18</del> '05'49		opposition	561 Jun 04 j 23:56	15° <del>27</del> '26'34	0°-7'-25
max. Earth dist.	554 Nov 07 j 09:03	17° <del>18</del> '05'42	19.92997 AU	min. Earth dist.	561 Jun 04 j 10:37	15° <del>27</del> '27'55	18.35464 AU
retrograde	555 Feb 22 j 09:46	21° <del>18</del> '18'13		direct	561 Aug 21 j 01:26	13° <del>27</del> '26'42	
opposition	555 May 09 j 03:34	19° <del>18</del> '17'59	0°14'33				
min. Earth dist.	555 May 09 j 00:24	19° <del>18</del> '18'18	17.96170 AU	conjunction	561 Dec 06 j 21:43	17° <del>27</del> '33'52	0°-8'-21
direct	555 Jul 25 j 12:01	17° <del>18</del> '15'42		minimum elong	561 Dec 06 j 21:44	17° <del>27</del> '33'52	0°08'22
				behind sun begin	561 Dec 06 j 15:57	17° <del>27</del> '33'02	
conjunction	555 Nov 11 j 21:34	21° <del>18</del> '31'38	0°11'30	behind sun end	561 Dec 07 j 03:31	17° <del>27</del> '34'43	
minimum elong	555 Nov 11 j 21:34	21° <del>18</del> '31'38	0°11'30	max. Earth dist.	561 Dec 07 j 11:20	17° <del>27</del> '35'54	20.38564 AU
behind sun begin	555 Nov 11 j 16:46	21° <del>18</del> '30'55		retrograde	562 Mar 24 j 18:50	21° <del>27</del> '41'21	
behind sun end	555 Nov 12 j 02:22	21° <del>18</del> '32'21		opposition	562 Jun 09 j 17:13	19° <del>27</del> '42'00	0°-10'-58
max. Earth dist.	555 Nov 12 j 01:02	21° <del>18</del> '32'09	19.99433 AU	min. Earth dist.	562 Jun 09 j 03:35	19° <del>27</del> '43'23	18.41600 AU
retrograde	556 Feb 27 j 01:52	25° <del>18</del> '43'41		direct	562 Aug 25 j 15:49	17° <del>27</del> '42'28	
opposition	556 May 13 j 00:27	23° <del>18</del> '43'36	0°10'55				
min. Earth dist.	556 May 12 j 19:50	23° <del>18</del> '44'04	18.02700 AU	conjunction	562 Dec 11 j 07:16	21° <del>27</del> '48'13	0°-11'-30
direct	556 Jul 29 j 07:01	21° <del>18</del> '41'44		minimum elong	562 Dec 11 j 07:16	21° <del>27</del> '48'13	0°11'32
				behind sun begin	562 Dec 11 j 02:30	21° <del>27</del> '47'32	
conjunction	556 Nov 15 j 11:27	25° <del>18</del> '56'13	0°08'13	behind sun end	562 Dec 11 j 12:02	21° <del>27</del> '48'55	
minimum elong	556 Nov 15 j 11:26	25° <del>18</del> '56'13	0°08'14	max. Earth dist.	562 Dec 11 j 22:14	21° <del>27</del> '50'27	20.44594 AU
behind sun begin	556 Nov 15 j 05:37	25° <del>18</del> '55'21		retrograde	563 Mar 29 j 08:34	25° <del>27</del> '54'59	
behind sun end	556 Nov 15 j 17:16	25° <del>18</del> '57'05		opposition	563 Jun 14 j 09:34	23° <del>27</del> '55'40	0°-14'-26

min. Earth dist.	563 Jun 13 j 17:37	23° $\mathring{A}$ 57'17	18.47515 AU	retrograde	571 May 01 j 22:24	28° $\mathring{C}$ 51'03	
direct	563 Aug 30 j 08:34	21° $\mathring{A}$ 56'25		opposition	571 Jul 18 j 19:49	26° $\mathring{C}$ 52'07	0°-37'-21
				min. Earth dist.	571 Jul 17 j 19:24	26° $\mathring{C}$ 54'34	18.87942 AU
conjunction	563 Dec 15 j 16:12	26° $\mathring{A}$ 00'48	0°-14'-35	direct	571 Oct 03 j 02:50	24° $\mathring{C}$ 55'05	
minimum elong	563 Dec 15 j 16:12	26° $\mathring{A}$ 00'48	0°14'36				
behind sun begin	563 Dec 15 j 13:13	26° $\mathring{A}$ 00'22		conjunction	572 Jan 16 j 21:41	28° $\mathring{C}$ 51'06	0°-34'-45
behind sun end	563 Dec 15 j 19:12	26° $\mathring{A}$ 01'14		minimum elong	572 Jan 16 j 21:41	28° $\mathring{C}$ 51'06	0°34'47
max. Earth dist.	563 Dec 16 j 08:35	26° $\mathring{A}$ 03'14	20.50396 AU	max. Earth dist.	572 Jan 17 j 22:49	28° $\mathring{C}$ 54'45	20.89865 AU
	564 Mar 16 j 09:15	0° $\mathring{C}$			572 Feb 05 j 21:43	0° $\approx$	
retrograde	564 Apr 01 j 19:42	0° $\mathring{C}$ 06'52		retrograde	572 May 05 j 06:19	2° $\approx$ 53'32	
	564 Apr 18 j 11:20	30° $\mathring{R}$ $\mathring{A}$		min. Earth dist.	572 Jul 21 j 06:48	0° $\approx$ 57'03	18.91755 AU
min. Earth dist.	564 Jun 17 j 09:01	28° $\mathring{A}$ 09'12	18.53228 AU	opposition	572 Jul 22 j 06:31	0° $\approx$ 54'41	0°-39'-27
opposition	564 Jun 18 j 01:07	28° $\mathring{A}$ 07'34	0°-17'-48		572 Aug 15 j 00:12	30° $\mathring{R}$ $\mathring{C}$	
direct	564 Sep 02 j 21:14	26° $\mathring{A}$ 08'34		direct	572 Oct 06 j 10:31	28° $\mathring{C}$ 57'53	
	564 Dec 15 j 18:08	0° $\mathring{C}$			572 Nov 25 j 10:21	0° $\approx$	
conjunction	564 Dec 19 j 00:29	0° $\mathring{C}$ 11'39	0°-17'-34	conjunction	573 Jan 20 j 03:15	2° $\approx$ 53'12	0°-36'-34
minimum elong	564 Dec 19 j 00:29	0° $\mathring{C}$ 11'39	0°17'36	minimum elong	573 Jan 20 j 03:14	2° $\approx$ 53'12	0°36'35
max. Earth dist.	564 Dec 19 j 18:06	0° $\mathring{C}$ 14'16	20.56017 AU	max. Earth dist.	573 Jan 21 j 04:13	2° $\approx$ 56'49	20.93466 AU
retrograde	565 Apr 06 j 07:59	4° $\mathring{C}$ 17'04		retrograde	573 May 09 j 17:02	6° $\approx$ 55'24	
opposition	565 Jun 22 j 15:55	2° $\mathring{C}$ 17'47	0°-21'-3	opposition	573 Jul 26 j 16:51	4° $\approx$ 56'35	0°-41'-22
min. Earth dist.	565 Jun 21 j 21:25	2° $\mathring{C}$ 19'39	18.58762 AU	min. Earth dist.	573 Jul 25 j 16:08	4° $\approx$ 59'03	18.95128 AU
direct	565 Sep 07 j 12:01	0° $\mathring{C}$ 19'03		direct	573 Oct 10 j 18:52	2° $\approx$ 59'59	
conjunction	565 Dec 23 j 08:01	4° $\mathring{C}$ 20'53	0°-20'-26	conjunction	574 Jan 24 j 08:39	6° $\approx$ 54'40	0°-38'-12
minimum elong	565 Dec 23 j 08:01	4° $\mathring{C}$ 20'53	0°20'27	minimum elong	574 Jan 24 j 08:39	6° $\approx$ 54'40	0°38'13
max. Earth dist.	565 Dec 24 j 03:16	4° $\mathring{C}$ 23'44	20.61458 AU	max. Earth dist.	574 Jan 25 j 10:15	6° $\approx$ 58'22	20.96582 AU
retrograde	566 Apr 10 j 18:26	8° $\mathring{C}$ 25'42		retrograde	574 May 14 j 00:13	10° $\approx$ 56'41	
min. Earth dist.	566 Jun 26 j 11:26	6° $\mathring{C}$ 28'20	18.64139 AU	min. Earth dist.	574 Jul 30 j 03:06	9° $\approx$ 00'14	18.97994 AU
opposition	566 Jun 27 j 06:14	6° $\mathring{C}$ 26'26	0°-24'-10	opposition	574 Jul 31 j 02:54	8° $\approx$ 57'52	0°-43'-4
direct	566 Sep 11 j 23:22	4° $\mathring{C}$ 27'59		direct	574 Oct 15 j 01:54	7° $\approx$ 01'25	
conjunction	566 Dec 27 j 15:12	8° $\mathring{C}$ 28'39	0°-23'-11	conjunction	575 Jan 28 j 14:07	10° $\approx$ 55'31	0°-39'-39
minimum elong	566 Dec 27 j 15:12	8° $\mathring{C}$ 28'39	0°23'12	minimum elong	575 Jan 28 j 14:07	10° $\approx$ 55'31	0°39'40
max. Earth dist.	566 Dec 28 j 11:32	8° $\mathring{C}$ 31'39	20.66759 AU	max. Earth dist.	575 Jan 29 j 15:08	10° $\approx$ 59'07	20.99191 AU
retrograde	567 Apr 15 j 05:58	12° $\mathring{C}$ 32'56		retrograde	575 May 18 j 10:23	14° $\approx$ 57'21	
opposition	567 Jul 01 j 19:35	10° $\mathring{C}$ 33'43	0°-27'-7	min. Earth dist.	575 Aug 03 j 11:53	13° $\approx$ 00'56	19.00338 AU
min. Earth dist.	567 Jun 30 j 22:29	10° $\mathring{C}$ 35'50	18.69361 AU	opposition	575 Aug 04 j 12:15	12° $\approx$ 58'30	0°-44'-33
direct	567 Sep 16 j 11:46	8° $\mathring{C}$ 35'32		direct	575 Oct 19 j 09:14	11° $\approx$ 02'08	
conjunction	567 Dec 31 j 21:53	12° $\mathring{C}$ 35'07	0°-25'-48	conjunction	576 Feb 01 j 19:31	14° $\approx$ 55'45	0°-40'-54
minimum elong	567 Dec 31 j 21:53	12° $\mathring{C}$ 35'07	0°25'49	minimum elong	576 Feb 01 j 19:31	14° $\approx$ 55'45	0°40'55
max. Earth dist.	568 Jan 01 j 19:42	12° $\mathring{C}$ 38'19	20.71881 AU	max. Earth dist.	576 Feb 02 j 20:51	14° $\approx$ 59'23	21.01259 AU
retrograde	568 Apr 18 j 15:36	16° $\mathring{C}$ 38'55			576 Feb 03 j 01:05	15° $\approx$	
min. Earth dist.	568 Jul 04 j 11:20	14° $\mathring{C}$ 41'53	18.74392 AU	retrograde	576 May 21 j 17:17	18° $\approx$ 57'27	
opposition	568 Jul 05 j 08:30	14° $\mathring{C}$ 39'46	0°-29'-56	opposition	576 Aug 07 j 21:20	16° $\approx$ 58'32	0°-45'-48
direct	568 Sep 19 j 21:55	12° $\mathring{C}$ 41'54		min. Earth dist.	576 Aug 06 j 22:01	17° $\approx$ 00'51	19.02145 AU
				direct	576 Oct 22 j 15:45	15° $\approx$ 02'12	
conjunction	569 Jan 04 j 04:10	16° $\mathring{C}$ 40'28	0°-28'-16	conjunction	577 Feb 05 j 00:41	18° $\approx$ 55'22	0°-41'-56
minimum elong	569 Jan 04 j 04:10	16° $\mathring{C}$ 40'28	0°28'17	minimum elong	577 Feb 05 j 00:41	18° $\approx$ 55'22	0°41'58
max. Earth dist.	569 Jan 05 j 02:42	16° $\mathring{C}$ 43'46	20.76806 AU	max. Earth dist.	577 Feb 06 j 01:20	18° $\approx$ 58'54	21.02824 AU
retrograde	569 Apr 23 j 02:38	20° $\mathring{C}$ 43'51		retrograde	577 May 26 j 02:38	22° $\approx$ 56'59	
opposition	569 Jul 09 j 20:42	18° $\mathring{C}$ 44'46	0°-32'-35	min. Earth dist.	577 Aug 11 j 06:07	21° $\approx$ 00'20	19.03470 AU
min. Earth dist.	569 Jul 08 j 21:33	18° $\mathring{C}$ 47'05	18.79198 AU	opposition	577 Aug 12 j 05:55	20° $\approx$ 57'57	0°-46'-50
direct	569 Sep 24 j 08:31	16° $\mathring{C}$ 47'11		direct	577 Oct 26 j 22:16	19° $\approx$ 01'38	
conjunction	570 Jan 08 j 10:13	20° $\mathring{C}$ 44'49	0°-30'-35	conjunction	578 Feb 09 j 05:57	22° $\approx$ 54'25	0°-42'-46
minimum elong	570 Jan 08 j 10:13	20° $\mathring{C}$ 44'49	0°30'37	minimum elong	578 Feb 09 j 05:57	22° $\approx$ 54'25	0°42'47
max. Earth dist.	570 Jan 09 j 10:04	20° $\mathring{C}$ 48'19	20.81474 AU	max. Earth dist.	578 Feb 10 j 07:02	22° $\approx$ 58'01	21.03916 AU
retrograde	570 Apr 27 j 11:33	24° $\mathring{C}$ 47'51		retrograde	578 May 30 j 09:37	26° $\approx$ 56'00	
min. Earth dist.	570 Jul 13 j 09:39	22° $\mathring{C}$ 51'09	18.83732 AU	opposition	578 Aug 16 j 14:10	24° $\approx$ 56'51	0°-47'-38
opposition	570 Jul 14 j 08:35	22° $\mathring{C}$ 48'51	0°-35'-3	min. Earth dist.	578 Aug 15 j 15:17	24° $\approx$ 59'08	19.04352 AU
direct	570 Sep 28 j 17:28	20° $\mathring{C}$ 51'34		direct	578 Oct 31 j 04:07	23° $\approx$ 00'31	
conjunction	571 Jan 12 j 15:57	24° $\mathring{C}$ 48'20	0°-32'-45	conjunction	579 Feb 13 j 11:14	26° $\approx$ 53'03	0°-43'-24
minimum elong	571 Jan 12 j 15:57	24° $\mathring{C}$ 48'20	0°32'46	minimum elong	579 Feb 13 j 11:14	26° $\approx$ 53'03	0°43'26
max. Earth dist.	571 Jan 13 j 16:10	24° $\mathring{C}$ 51'52	20.85856 AU				

max. Earth dist.	579 Feb 14 j 11:34	26° $\approx$ 56'32	21.04602 AU	max. Earth dist.	587 Mar 18 j 09:56	28° $\times$ 49'19	20.96172 AU
	579 Apr 16 j 14:02	0° $\times$			587 Apr 08 j 07:38	0° $\gamma$	
retrograde	579 Jun 03 j 18:55	0° $\times$ 54'38		retrograde	587 Jul 06 j 19:17	2° $\gamma$ 50'41	
	579 Jul 23 j 12:11	30° $\approx$		opposition	587 Sep 22 j 07:28	0° $\gamma$ 50'52	0°-44'-28
opposition	579 Aug 20 j 21:59	28° $\approx$ 55'22	0°-48'-12	min. Earth dist.	587 Sep 21 j 15:10	0° $\gamma$ 52'32	18.94725 AU
min. Earth dist.	579 Aug 19 j 22:44	28° $\approx$ 57'42	19.04843 AU		587 Oct 13 j 20:00	30° $\approx$ $\times$	
direct	579 Nov 04 j 10:01	26° $\approx$ 59'01		direct	587 Dec 06 j 02:00	28° $\times$ 54'07	
	580 Feb 02 j 15:21	0° $\times$			588 Jan 26 j 13:04	0° $\gamma$	
conjunction	580 Feb 17 j 16:41	0° $\times$ 51'22	0°-43'-49	conjunction	588 Mar 21 j 00:22	2° $\gamma$ 48'43	0°-39'-35
minimum elong	580 Feb 17 j 16:41	0° $\times$ 51'22	0°43'49	minimum elong	588 Mar 21 j 00:22	2° $\gamma$ 48'43	0°39'36
max. Earth dist.	580 Feb 18 j 17:19	0° $\times$ 54'54	21.04889 AU	max. Earth dist.	588 Mar 21 j 17:51	2° $\gamma$ 51'13	20.93085 AU
retrograde	580 Jun 07 j 01:53	4° $\times$ 53'02		retrograde	588 Jul 10 j 05:03	6° $\gamma$ 53'12	
min. Earth dist.	580 Aug 23 j 07:09	2° $\times$ 55'55	19.04946 AU	opposition	588 Sep 25 j 14:47	4° $\gamma$ 53'16	0°-42'-57
opposition	580 Aug 24 j 05:28	2° $\times$ 53'40	0°-48'-33	min. Earth dist.	588 Sep 25 j 00:14	4° $\gamma$ 54'45	18.91372 AU
direct	580 Nov 07 j 14:56	0° $\times$ 57'18		direct	588 Dec 09 j 08:18	2° $\gamma$ 56'20	
conjunction	581 Feb 20 j 22:14	4° $\times$ 49'36	0°-44'-1	conjunction	589 Mar 25 j 09:36	6° $\gamma$ 51'34	0°-38'-7
minimum elong	581 Feb 20 j 22:14	4° $\times$ 49'36	0°44'02	minimum elong	589 Mar 25 j 09:36	6° $\gamma$ 51'34	0°38'08
max. Earth dist.	581 Feb 21 j 21:56	4° $\times$ 52'59	21.04823 AU	max. Earth dist.	589 Mar 26 j 00:37	6° $\gamma$ 53'43	20.89500 AU
retrograde	581 Jun 11 j 11:28	8° $\times$ 51'25		retrograde	589 Jul 14 j 16:05	10° $\gamma$ 56'35	
opposition	581 Aug 28 j 12:49	6° $\times$ 51'57	0°-48'-39	opposition	589 Sep 29 j 22:12	8° $\gamma$ 56'28	0°-41'-14
min. Earth dist.	581 Aug 27 j 14:18	6° $\times$ 54'13	19.04700 AU	min. Earth dist.	589 Sep 29 j 08:56	8° $\gamma$ 57'50	18.87543 AU
direct	581 Nov 11 j 20:31	4° $\times$ 55'34		direct	589 Dec 13 j 14:06	6° $\gamma$ 59'17	
conjunction	582 Feb 25 j 04:01	8° $\times$ 47'54	0°-44'-1	conjunction	590 Mar 29 j 19:27	10° $\gamma$ 55'14	0°-36'-27
minimum elong	582 Feb 25 j 04:01	8° $\times$ 47'54	0°44'01	minimum elong	590 Mar 29 j 19:27	10° $\gamma$ 55'14	0°36'28
max. Earth dist.	582 Feb 26 j 03:56	8° $\times$ 51'19	21.04388 AU	max. Earth dist.	590 Mar 30 j 09:39	10° $\gamma$ 57'16	20.85442 AU
retrograde	582 Jun 15 j 18:57	12° $\times$ 49'56		retrograde	590 Jul 19 j 02:11	15° $\gamma$ 00'47	
opposition	582 Sep 01 j 20:03	10° $\times$ 50'25	0°-48'-32	opposition	590 Oct 04 j 05:43	13° $\gamma$ 00'31	0°-39'-17
min. Earth dist.	582 Aug 31 j 22:38	10° $\times$ 52'34	19.04078 AU	min. Earth dist.	590 Oct 03 j 18:06	13° $\gamma$ 01'42	18.83264 AU
direct	582 Nov 16 j 00:45	8° $\times$ 54'01		direct	590 Dec 17 j 21:01	11° $\gamma$ 03'03	
conjunction	583 Mar 01 j 10:12	12° $\times$ 46'29	0°-43'-48	conjunction	591 Apr 03 j 05:51	14° $\gamma$ 59'47	0°-34'-36
minimum elong	583 Mar 01 j 10:12	12° $\times$ 46'29	0°43'49	minimum elong	591 Apr 03 j 05:51	14° $\gamma$ 59'47	0°34'37
max. Earth dist.	583 Mar 02 j 08:53	12° $\times$ 49'43	21.03592 AU	max. Earth dist.	591 Apr 03 j 17:31	15° $\gamma$ 01'27	20.80985 AU
retrograde	583 Jun 20 j 04:45	16° $\times$ 48'47		retrograde	591 Jul 23 j 13:39	19° $\gamma$ 05'55	
min. Earth dist.	583 Sep 05 j 05:50	14° $\times$ 51'21	19.03087 AU	opposition	591 Oct 08 j 13:14	17° $\gamma$ 05'25	0°-37'-8
opposition	583 Sep 06 j 02:59	14° $\times$ 49'13	0°-48'-11	min. Earth dist.	591 Oct 08 j 03:01	17° $\gamma$ 06'29	18.78630 AU
direct	583 Nov 20 j 06:11	12° $\times$ 52'46		direct	591 Dec 22 j 03:58	15° $\gamma$ 07'39	
conjunction	584 Mar 04 j 16:51	16° $\times$ 45'30	0°-43'-23	conjunction	592 Apr 06 j 16:54	19° $\gamma$ 05'15	0°-32'-33
minimum elong	584 Mar 04 j 16:51	16° $\times$ 45'30	0°43'24	minimum elong	592 Apr 06 j 16:54	19° $\gamma$ 05'15	0°32'34
max. Earth dist.	584 Mar 05 j 15:25	16° $\times$ 48'44	21.02396 AU	max. Earth dist.	592 Apr 07 j 03:56	19° $\gamma$ 06'50	20.76186 AU
retrograde	584 Jun 23 j 13:05	20° $\times$ 48'09		retrograde	592 Jul 26 j 23:58	23° $\gamma$ 11'59	
opposition	584 Sep 09 j 10:03	18° $\times$ 48'32	0°-47'-36	opposition	592 Oct 11 j 21:04	21° $\gamma$ 11'19	0°-34'-48
min. Earth dist.	584 Sep 08 j 14:16	18° $\times$ 50'33	19.01682 AU	min. Earth dist.	592 Oct 11 j 12:16	21° $\gamma$ 12'14	18.73683 AU
direct	584 Nov 23 j 10:26	16° $\times$ 52'05		direct	592 Dec 25 j 10:55	19° $\gamma$ 13'14	
conjunction	585 Mar 08 j 23:43	20° $\times$ 45'08	0°-42'-45	conjunction	593 Apr 11 j 04:20	23° $\gamma$ 11'46	0°-30'-21
minimum elong	585 Mar 08 j 23:43	20° $\times$ 45'08	0°42'45	minimum elong	593 Apr 11 j 04:20	23° $\gamma$ 11'46	0°30'22
max. Earth dist.	585 Mar 09 j 20:44	20° $\times$ 48'08	21.00792 AU	max. Earth dist.	593 Apr 11 j 12:56	23° $\gamma$ 13'00	20.71126 AU
retrograde	585 Jun 27 j 23:15	24° $\times$ 48'12		retrograde	593 Jul 31 j 12:23	27° $\gamma$ 19'10	
opposition	585 Sep 13 j 17:09	22° $\times$ 48'32	0°-46'-47	opposition	593 Oct 16 j 05:12	25° $\gamma$ 18'18	0°-32'-16
min. Earth dist.	585 Sep 12 j 22:02	22° $\times$ 50'28	18.99853 AU	min. Earth dist.	593 Oct 15 j 21:45	25° $\gamma$ 19'04	18.68507 AU
direct	585 Nov 27 j 15:44	20° $\times$ 52'01		direct	593 Dec 29 j 19:07	23° $\gamma$ 19'53	
conjunction	586 Mar 13 j 07:24	24° $\times$ 45'31	0°-41'-54	conjunction	594 Apr 15 j 16:47	27° $\gamma$ 19'26	0°-27'-58
minimum elong	586 Mar 13 j 07:24	24° $\times$ 45'31	0°41'55	minimum elong	594 Apr 15 j 16:47	27° $\gamma$ 19'26	0°27'59
max. Earth dist.	586 Mar 14 j 03:57	24° $\times$ 48'27	20.98724 AU	max. Earth dist.	594 Apr 16 j 00:50	27° $\gamma$ 20'36	20.65839 AU
retrograde	586 Jul 02 j 08:36	28° $\times$ 49'01			594 Jun 04 j 21:24	0° $\times$	
min. Earth dist.	586 Sep 17 j 06:49	26° $\times$ 51'04	18.97540 AU	retrograde	594 Aug 04 j 23:12	1° $\times$ 27'31	
opposition	586 Sep 18 j 00:15	26° $\times$ 49'18	0°-45'-44		594 Oct 06 j 23:28	30° $\approx$ $\gamma$	
direct	586 Dec 01 j 20:48	24° $\times$ 52'41		opposition	594 Oct 20 j 13:29	29° $\gamma$ 26'29	0°-29'-33
				min. Earth dist.	594 Oct 20 j 07:23	29° $\gamma$ 27'07	18.63123 AU
conjunction	587 Mar 17 j 15:36	28° $\times$ 46'42	0°-40'-51	direct	595 Jan 03 j 02:44	27° $\gamma$ 27'45	
minimum elong	587 Mar 17 j 15:36	28° $\times$ 46'42	0°40'51		595 Mar 25 j 06:11	0° $\times$	

conjunction	595 Apr 20 j 05:51	1°8'28"24	0°-25'-26
minimum elong	595 Apr 20 j 05:51	1°8'28"24	0°25'28
max. Earth dist.	595 Apr 20 j 11:14	1°8'29"11	20.60382 AU
retrograde	595 Aug 09 j 12:22	5°8'37"13	
opposition	595 Oct 24 j 22:17	3°8'36"02	0°-26'-40
min. Earth dist.	595 Oct 24 j 17:43	3°8'36"30	18.57589 AU
direct	596 Jan 07 j 11:44	1°8'36"59	
conjunction	596 Apr 23 j 19:42	5°8'38"49	0°-22'-46
minimum elong	596 Apr 23 j 19:42	5°8'38"49	0°22'47
max. Earth dist.	596 Apr 24 j 00:33	5°8'39"31	20.54772 AU
retrograde	596 Aug 13 j 00:38	9°8'48"22	
opposition	596 Oct 28 j 07:29	7°8'47"05	0°-23'-39
min. Earth dist.	596 Oct 28 j 04:07	7°8'47"26	18.51908 AU
direct	597 Jan 10 j 20:43	5°8'47"44	
conjunction	597 Apr 28 j 10:19	9°8'50"48	0°-19'-57
minimum elong	597 Apr 28 j 10:19	9°8'50"48	0°19'58
max. Earth dist.	597 Apr 28 j 12:22	9°8'51"05	20.49043 AU
retrograde	597 Aug 17 j 14:28	14°8'01"10	
opposition	597 Nov 01 j 17:08	11°8'59"46	0°-20'-28
min. Earth dist.	597 Nov 01 j 15:35	11°8'59"56	18.46119 AU
direct	598 Jan 15 j 06:19	10°8'00"06	
conjunction	598 May 03 j 02:03	14°8'04"31	0°-17'-1
minimum elong	598 May 03 j 02:03	14°8'04"31	0°17'03
max. Earth dist.	598 May 03 j 03:22	14°8'04"42	20.43185 AU
	598 May 19 j 00:35	15°8'	
retrograde	598 Aug 22 j 04:53	18°8'15"41	
opposition	598 Nov 06 j 03:19	16°8'14"13	0°-17'-9
min. Earth dist.	598 Nov 06 j 03:09	16°8'14"14	18.40181 AU
	598 Dec 07 j 17:51	15°8'	
direct	599 Jan 19 j 16:53	14°8'14"16	
	599 Mar 02 j 20:42	15°8'	
conjunction	599 May 07 j 18:34	18°8'20"02	0°-13'-58
minimum elong	599 May 07 j 18:34	18°8'20"02	0°13'58
behind sun begin	599 May 07 j 15:19	18°8'19"34	
behind sun end	599 May 07 j 21:49	18°8'20"30	
max. Earth dist.	599 May 07 j 16:40	18°8'19"46	20.37175 AU
retrograde	599 Aug 26 j 19:39	22°8'32"02	
opposition	599 Nov 10 j 14:02	20°8'30"30	0°-13'-43
min. Earth dist.	599 Nov 10 j 16:08	20°8'30"17	18.34093 AU
direct	600 Jan 24 j 03:36	18°8'30"12	
conjunction	600 May 11 j 12:10	22°8'37"25	0°-10'-50
minimum elong	600 May 11 j 12:10	22°8'37"25	0°10'51
behind sun begin	600 May 11 j 07:05	22°8'36"41	
behind sun end	600 May 11 j 17:14	22°8'38"09	
max. Earth dist.	600 May 11 j 09:15	22°8'37"00	20.30996 AU
retrograde	600 Aug 30 j 11:45	26°8'50"14	
opposition	600 Nov 14 j 01:25	24°8'48"37	0°-10'-10
min. Earth dist.	600 Nov 14 j 04:52	24°8'48"15	18.27822 AU

direct	600 Jan 24 j 03:36	18°♄30'12		conjunction	606 Jun 08 j 14:37	18°♄58'50	0°09'15
				minimum elong	606 Jun 08 j 14:37	18°♄58'50	0°09'15
conjunction	600 May 11 j 12:10	22°♄37'25	0°-10'-50	behind sun begin	606 Jun 08 j 08:57	18°♄58'00	
minimum elong	600 May 11 j 12:10	22°♄37'25	0°10'51	behind sun end	606 Jun 08 j 20:17	18°♄59'40	
behind sun begin	600 May 11 j 07:05	22°♄36'41		max. Earth dist.	606 Jun 07 j 23:16	18°♄56'32	19.91729 AU
behind sun end	600 May 11 j 17:14	22°♄38'09		retrograde	606 Sep 26 j 22:03	23°♄16'18	
max. Earth dist.	600 May 11 j 09:15	22°♄37'00	20.30996 AU	opposition	606 Dec 10 j 10:25	21°♄13'56	0°12'05
retrograde	600 Aug 30 j 11:45	26°♄50'14		min. Earth dist.	606 Dec 10 j 23:32	21°♄12'31	17.88534 AU
opposition	600 Nov 14 j 01:25	24°♄48'37	0°-10'-10	direct	607 Feb 23 j 08:38	19°♄10'46	
min. Earth dist.	600 Nov 14 j 04:52	24°♄48'15	18.27822 AU				
direct	601 Jan 27 j 15:59	22°♄47'59		conjunction	607 Jun 13 j 13:30	23°♄28'20	0°12'34
				minimum elong	607 Jun 13 j 13:30	23°♄28'20	0°12'34
conjunction	601 May 16 j 06:26	26°♄56'38	0°-7'-36	behind sun begin	607 Jun 13 j 09:17	23°♄27'43	
minimum elong	601 May 16 j 06:25	26°♄56'38	0°07'37	behind sun end	607 Jun 13 j 17:44	23°♄28'57	
behind sun begin	601 May 16 j 00:18	26°♄55'45		max. Earth dist.	607 Jun 12 j 19:56	23°♄25'41	19.85410 AU
behind sun end	601 May 16 j 12:32	26°♄57'31		retrograde	607 Oct 01 j 16:36	27°♄46'31	
max. Earth dist.	601 May 16 j 00:05	26°♄55'43	20.24641 AU	opposition	607 Dec 15 j 02:13	25°♄44'03	0°15'45
	601 Jul 12 j 19:42	0°♄		min. Earth dist.	607 Dec 15 j 17:27	25°♄42'24	17.82350 AU
retrograde	601 Sep 04 j 03:33	1°♄10'17		direct	608 Feb 28 j 00:26	23°♄40'29	
	601 Oct 28 j 18:10	30°♄					
opposition	601 Nov 18 j 13:31	29°♄08'33	0°-6'-32	conjunction	608 Jun 17 j 13:10	27°♄59'32	0°15'49
min. Earth dist.	601 Nov 18 j 19:24	29°♄07'56	18.21386 AU	minimum elong	608 Jun 17 j 13:10	27°♄59'32	0°15'49
direct	602 Feb 01 j 04:18	27°♄07'31		max. Earth dist.	608 Jun 16 j 18:49	27°♄56'46	19.79364 AU
	602 Apr 28 j 21:17	0°♄			608 Jul 21 j 21:57	0°♄	
				retrograde	608 Oct 05 j 13:58	2°♄18'24	
conjunction	602 May 21 j 01:53	1°♄17'39	0°-4'-19	opposition	608 Dec 18 j 18:33	0°♄15'51	0°19'21
minimum elong	602 May 21 j 01:52	1°♄17'39	0°04'20	min. Earth dist.	608 Dec 19 j 09:51	0°♄14'12	17.76459 AU
behind sun begin	602 May 20 j 19:12	1°♄16'41			608 Dec 24 j 20:54	30°♄	
behind sun end	602 May 21 j 08:31	1°♄18'36		direct	609 Mar 03 j 19:49	28°♄11'56	
max. Earth dist.	602 May 20 j 18:23	1°♄16'34	20.18127 AU		609 May 09 j 00:55	0°♄	
retrograde	602 Sep 08 j 20:53	5°♄32'05					
opposition	602 Nov 23 j 01:59	3°♄30'14	0°-2'-51	conjunction	609 Jun 22 j 13:26	2°♄32'26	0°19'00
min. Earth dist.	602 Nov 23 j 09:05	3°♄29'28	18.14803 AU	minimum elong	609 Jun 22 j 13:26	2°♄32'26	0°19'00
direct	603 Feb 05 j 18:34	1°♄28'48		max. Earth dist.	609 Jun 21 j 17:29	2°♄29'25	19.73631 AU
				retrograde	609 Oct 10 j 09:18	6°♄51'58	
conjunction	603 May 25 j 21:54	5°♄40'24	0°00'-56	opposition	609 Dec 23 j 11:50	4°♄49'24	0°22'50
minimum elong	603 May 25 j 21:55	5°♄40'24	0°00'57	min. Earth dist.	609 Dec 24 j 05:06	4°♄47'31	17.70909 AU
behind sun begin	603 May 25 j 15:09	5°♄39'25		direct	610 Mar 08 j 13:05	2°♄45'09	
behind sun end	603 May 26 j 04:42	5°♄41'22					
max. Earth dist.	603 May 25 j 11:08	5°♄38'49	20.11502 AU	conjunction	610 Jun 27 j 14:28	7°♄07'05	0°22'04
asc. node	603 Sep 02 j 19:12	9°♄52'32		minimum elong	610 Jun 27 j 14:28	7°♄07'05	0°22'04
retrograde	603 Sep 13 j 13:39	9°♄55'37		max. Earth dist.	610 Jun 26 j 17:31	7°♄03'54	19.68263 AU
opposition	603 Nov 27 j 15:17	7°♄53'38	0°00'52	retrograde	610 Oct 15 j 07:31	11°♄27'14	
min. Earth dist.	603 Nov 28 j 00:48	7°♄52'37	18.08157 AU	opposition	610 Dec 28 j 05:36	9°♄24'41	0°26'12
direct	604 Feb 10 j 08:22	5°♄51'46		min. Earth dist.	610 Dec 28 j 22:51	9°♄22'48	17.65723 AU
				direct	611 Mar 13 j 10:32	7°♄20'10	
conjunction	604 May 29 j 18:41	10°♄04'51	0°02'32				
minimum elong	604 May 29 j 18:41	10°♄04'51	0°02'32	conjunction	611 Jul 02 j 16:07	11°♄43'29	0°25'02
behind sun begin	604 May 29 j 11:55	10°♄03'52		minimum elong	611 Jul 02 j 16:07	11°♄43'29	0°25'02
behind sun end	604 May 30 j 01:28	10°♄05'50		max. Earth dist.	611 Jul 01 j 18:12	11°♄40'08	19.63256 AU
max. Earth dist.	604 May 29 j 07:01	10°♄03'08	20.04845 AU	retrograde	611 Oct 20 j 03:45	16°♄04'13	
retrograde	604 Sep 17 j 08:10	14°♄20'51		opposition	612 Jan 02 j 00:25	14°♄01'43	0°29'26
opposition	604 Dec 01 j 05:02	12°♄18'44	0°04'37	min. Earth dist.	612 Jan 02 j 19:33	13°♄59'37	17.60910 AU
min. Earth dist.	604 Dec 01 j 15:21	12°♄17'37	18.01507 AU	direct	612 Mar 17 j 05:41	11°♄56'57	
direct	605 Feb 14 j 00:12	10°♄16'25					
				conjunction	612 Jul 06 j 18:08	16°♄21'36	0°27'51
conjunction	605 Jun 03 j 16:13	14°♄31'00	0°05'55	minimum elong	612 Jul 06 j 18:08	16°♄21'36	0°27'51
minimum elong	605 Jun 03 j 16:13	14°♄31'00	0°05'54	max. Earth dist.	612 Jul 05 j 18:57	16°♄18'02	19.58622 AU
behind sun begin	605 Jun 03 j 09:45	14°♄30'03		retrograde	612 Oct 24 j 02:57	20°♄42'53	
behind sun end	605 Jun 03 j 22:41	14°♄31'56		opposition	613 Jan 05 j 19:47	18°♄40'25	0°32'29
max. Earth dist.	605 Jun 03 j 01:43	14°♄28'50	19.98225 AU	min. Earth dist.	613 Jan 06 j 14:57	18°♄38'19	17.56450 AU
retrograde	605 Sep 22 j 02:02	18°♄47'45		direct	613 Mar 22 j 05:26	16°♄35'26	
opposition	605 Dec 05 j 19:25	16°♄45'29	0°08'22				
min. Earth dist.	605 Dec 06 j 08:05	16°♄44'07	17.94947 AU	conjunction	613 Jul 11 j 20:58	21°♄01'19	0°30'30
direct	606 Feb 18 j 15:05	14°♄42'44		minimum elong	613 Jul 11 j 20:58	21°♄01'19	0°30'30

max. Earth dist.	613 Jul 10 j 21:15	20° $\overline{57}$ '40	19.54316 AU	max. Earth dist.	621 Aug 19 j 00:21	28° $\overline{04}$ '49	19.33765 AU
retrograde	613 Oct 29 j 00:05	25° $\overline{23}$ '04					
opposition	614 Jan 10 j 16:00	23° $\overline{20}$ '39	0°35'21	conjunction	621 Aug 20 j 01:34	28° $\overline{05}$ '47	0°43'25
min. Earth dist.	614 Jan 11 j 13:00	23° $\overline{18}$ '21	17.52315 AU	minimum elong	621 Aug 20 j 01:34	28° $\overline{05}$ '47	0°43'25
direct	614 Mar 27 j 02:45	21° $\overline{15}$ '26			621 Sep 06 j 19:04	0° $\overline{00}$ '	
max. Earth dist.	614 Jul 15 j 22:43	25° $\overline{38}$ '32	19.50343 AU	retrograde	621 Dec 05 j 21:45	3° $\overline{16}$ '33	
				opposition	622 Feb 17 j 06:29	1° $\overline{14}$ '18	0°48'39
conjunction	614 Jul 17 j 00:09	25° $\overline{42}$ '28	0°32'58	min. Earth dist.	622 Feb 18 j 04:14	1° $\overline{11}$ '55	17.33614 AU
minimum elong	614 Jul 17 j 00:09	25° $\overline{42}$ '28	0°32'59		622 Mar 19 j 16:04	30° $\overline{00}$ '	
	614 Oct 21 j 03:57	0° $\overline{00}$ '		direct	622 May 04 j 15:17	29° $\overline{00}$ '48	
retrograde	614 Nov 02 j 23:59	0° $\overline{04}$ '37			622 Jun 18 j 15:02	0° $\overline{00}$ '	
	614 Nov 15 j 22:01	30° $\overline{00}$ '		max. Earth dist.	622 Aug 24 j 03:26	3° $\overline{35}$ '30	19.33534 AU
opposition	615 Jan 15 j 12:53	28° $\overline{02}$ '14	0°38'00				
min. Earth dist.	615 Jan 16 j 09:56	27° $\overline{59}$ '56	17.48509 AU	conjunction	622 Aug 25 j 04:33	3° $\overline{39}$ '27	0°43'47
direct	615 Apr 01 j 03:56	25° $\overline{56}$ '48		minimum elong	622 Aug 25 j 04:33	3° $\overline{39}$ '27	0°43'47
	615 Jul 15 j 11:12	0° $\overline{00}$ '		retrograde	622 Dec 10 j 20:38	8° $\overline{02}$ '04	
max. Earth dist.	615 Jul 21 j 02:18	0° $\overline{20}$ '55	19.46689 AU	opposition	623 Feb 22 j 07:15	5° $\overline{59}$ '52	0°48'54
				min. Earth dist.	623 Feb 23 j 04:38	5° $\overline{57}$ '33	17.33715 AU
conjunction	615 Jul 22 j 03:37	0° $\overline{24}$ '51	0°35'14	direct	623 May 09 j 17:53	3° $\overline{53}$ '25	
minimum elong	615 Jul 22 j 03:37	0° $\overline{24}$ '51	0°35'13	max. Earth dist.	623 Aug 29 j 07:42	8° $\overline{21}$ '22	19.33960 AU
retrograde	615 Nov 07 j 22:32	4° $\overline{47}$ '19					
opposition	616 Jan 20 j 10:36	2° $\overline{44}$ '57	0°40'24	conjunction	623 Aug 30 j 07:04	8° $\overline{25}$ '03	0°43'51
min. Earth dist.	616 Jan 21 j 08:58	2° $\overline{42}$ '31	17.45034 AU	minimum elong	623 Aug 30 j 07:04	8° $\overline{25}$ '03	0°43'50
direct	616 Apr 05 j 03:20	0° $\overline{39}$ '18		retrograde	623 Dec 15 j 20:50	12° $\overline{47}$ '27	
max. Earth dist.	616 Jul 25 j 04:18	5° $\overline{04}$ '03	19.43400 AU	opposition	624 Feb 27 j 08:10	10° $\overline{45}$ '23	0°48'48
				min. Earth dist.	624 Feb 28 j 03:57	10° $\overline{43}$ '14	17.34445 AU
conjunction	616 Jul 26 j 07:15	5° $\overline{08}$ '15	0°37'16	direct	624 May 13 j 22:00	8° $\overline{39}$ '03	
minimum elong	616 Jul 26 j 07:15	5° $\overline{08}$ '15	0°37'16	max. Earth dist.	624 Sep 02 j 10:45	13° $\overline{07}$ '00	19.35003 AU
retrograde	616 Nov 11 j 22:31	9° $\overline{30}$ '58					
opposition	617 Jan 24 j 08:37	7° $\overline{28}$ '37	0°42'32	conjunction	624 Sep 03 j 09:19	13° $\overline{10}$ '33	0°43'37
min. Earth dist.	617 Jan 25 j 06:59	7° $\overline{26}$ '10	17.41941 AU	minimum elong	624 Sep 03 j 09:19	13° $\overline{10}$ '33	0°43'37
direct	617 Apr 10 j 04:53	5° $\overline{22}$ '44		retrograde	624 Dec 19 j 19:06	17° $\overline{32}$ '40	
max. Earth dist.	617 Jul 30 j 08:56	9° $\overline{48}$ '23	19.40499 AU	opposition	625 Mar 03 j 09:14	15° $\overline{30}$ '46	0°48'23
				min. Earth dist.	625 Mar 04 j 04:52	15° $\overline{28}$ '38	17.35789 AU
conjunction	617 Jul 31 j 11:13	9° $\overline{52}$ '29	0°39'03	direct	625 May 19 j 00:37	13° $\overline{24}$ '34	
minimum elong	617 Jul 31 j 11:13	9° $\overline{52}$ '29	0°39'03				
retrograde	617 Nov 16 j 22:14	14° $\overline{15}$ '20		conjunction	625 Sep 08 j 11:10	17° $\overline{55}$ '50	0°43'05
opposition	618 Jan 29 j 07:24	12° $\overline{13}$ '00	0°44'24	minimum elong	625 Sep 08 j 11:10	17° $\overline{55}$ '50	0°43'05
min. Earth dist.	618 Jan 30 j 06:29	12° $\overline{10}$ '29	17.39248 AU	max. Earth dist.	625 Sep 07 j 13:56	17° $\overline{52}$ '29	19.36635 AU
direct	618 Apr 15 j 05:47	10° $\overline{06}$ '56		retrograde	625 Dec 24 j 19:17	22° $\overline{17}$ '36	
max. Earth dist.	618 Aug 04 j 11:24	14° $\overline{33}$ '01	19.38031 AU	opposition	626 Mar 08 j 10:33	20° $\overline{15}$ '53	0°47'37
				min. Earth dist.	626 Mar 09 j 04:20	20° $\overline{13}$ '58	17.37674 AU
conjunction	618 Aug 05 j 15:00	14° $\overline{37}$ '19	0°40'34	direct	626 May 24 j 05:27	18° $\overline{09}$ '54	
minimum elong	618 Aug 05 j 14:59	14° $\overline{37}$ '19	0°40'34				
	618 Aug 11 j 16:14	15° $\overline{00}$ '		conjunction	626 Sep 13 j 12:28	22° $\overline{40}$ '45	0°42'16
retrograde	618 Nov 21 j 21:58	19° $\overline{00}$ '17		minimum elong	626 Sep 13 j 12:28	22° $\overline{40}$ '45	0°42'16
opposition	619 Feb 03 j 06:33	16° $\overline{57}$ '56	0°45'56	max. Earth dist.	626 Sep 12 j 16:38	22° $\overline{37}$ '38	19.38771 AU
min. Earth dist.	619 Feb 04 j 05:32	16° $\overline{55}$ '26	17.37025 AU	retrograde	626 Dec 29 j 17:15	27° $\overline{02}$ '08	
	619 Apr 02 j 14:03	15° $\overline{00}$ '		opposition	627 Mar 13 j 12:10	25° $\overline{00}$ '35	0°46'33
direct	619 Apr 20 j 07:48	14° $\overline{51}$ '41		min. Earth dist.	627 Mar 14 j 05:51	24° $\overline{58}$ '41	17.40052 AU
	619 May 07 j 22:56	15° $\overline{00}$ '		direct	627 May 29 j 08:04	22° $\overline{54}$ '49	
conjunction	619 Aug 10 j 18:49	19° $\overline{22}$ '36	0°41'48	conjunction	627 Sep 18 j 13:11	27° $\overline{25}$ '08	0°41'09
minimum elong	619 Aug 10 j 18:49	19° $\overline{22}$ '36	0°41'49	minimum elong	627 Sep 18 j 13:11	27° $\overline{25}$ '08	0°41'10
max. Earth dist.	619 Aug 09 j 16:34	19° $\overline{18}$ '29	19.36054 AU	max. Earth dist.	627 Sep 17 j 18:19	27° $\overline{22}$ '10	19.41382 AU
retrograde	619 Nov 26 j 22:14	23° $\overline{45}$ '33			627 Nov 01 j 05:11	0° $\overline{00}$ '	
opposition	620 Feb 08 j 06:12	21° $\overline{43}$ '14	0°47'10	retrograde	628 Jan 03 j 17:17	1° $\overline{46}$ '03	
min. Earth dist.	620 Feb 09 j 05:05	21° $\overline{40}$ '44	17.35308 AU		628 Mar 11 j 14:12	30° $\overline{00}$ '	
direct	620 Apr 24 j 09:53	19° $\overline{36}$ '51		opposition	628 Mar 17 j 13:36	29° $\overline{44}$ '39	0°45'09
				min. Earth dist.	628 Mar 18 j 05:11	29° $\overline{42}$ '59	17.42868 AU
conjunction	620 Aug 14 j 22:11	24° $\overline{08}$ '08	0°42'46	direct	628 Jun 02 j 12:34	27° $\overline{39}$ '07	
minimum elong	620 Aug 14 j 22:11	24° $\overline{08}$ '08	0°42'45		628 Aug 18 j 00:10	0° $\overline{00}$ '	
max. Earth dist.	620 Aug 13 j 19:19	24° $\overline{03}$ '55	19.34615 AU				
retrograde	620 Nov 30 j 21:28	28° $\overline{31}$ '03		conjunction	628 Sep 22 j 13:22	2° $\overline{08}$ '46	0°39'46
opposition	621 Feb 12 j 06:12	26° $\overline{28}$ '43	0°48'05	minimum elong	628 Sep 22 j 13:22	2° $\overline{08}$ '46	0°39'46
min. Earth dist.	621 Feb 13 j 04:52	26° $\overline{26}$ '15	17.34164 AU	max. Earth dist.	628 Sep 21 j 20:22	2° $\overline{06}$ '06	19.44395 AU
direct	621 Apr 29 j 12:14	24° $\overline{22}$ '15		retrograde	629 Jan 07 j 14:47	6° $\overline{29}$ '09	

opposition	629 Mar 22 j 15:13	4° <del>2</del> 27'54	0°43'27	direct	637 Jul 16 j 01:11	9° <del>1</del> 19'07	
min. Earth dist.	629 Mar 23 j 06:40	4° <del>2</del> 26'15	17.46069 AU				
direct	629 Jun 07 j 14:07	2° <del>2</del> 22'36		conjunction	637 Nov 03 j 00:57	13° <del>1</del> 37'59	0°17'32
				minimum elong	637 Nov 03 j 00:57	13° <del>1</del> 37'59	0°17'32
conjunction	629 Sep 27 j 12:45	6° <del>2</del> 51'26	0°38'07	max. Earth dist.	637 Nov 03 j 00:06	13° <del>1</del> 37'52	19.86915 AU
minimum elong	629 Sep 27 j 12:45	6° <del>2</del> 51'26	0°38'07		637 Nov 25 j 12:48	15° <del>1</del>	
max. Earth dist.	629 Sep 26 j 20:22	6° <del>2</del> 48'52	19.47783 AU	retrograde	638 Feb 18 j 02:29	17° <del>1</del> 51'36	
retrograde	630 Jan 12 j 14:39	11° <del>2</del> 11'13		opposition	638 May 04 j 15:03	15° <del>1</del> 51'14	0°17'43
opposition	630 Mar 27 j 16:31	9° <del>2</del> 10'06	0°41'28	min. Earth dist.	638 May 04 j 14:08	15° <del>1</del> 51'20	17.90040 AU
min. Earth dist.	630 Mar 28 j 05:42	9° <del>2</del> 08'42	17.49621 AU		638 May 25 j 20:25	15° <del>1</del>	
direct	630 Jun 12 j 18:02	7° <del>2</del> 05'02		direct	638 Jul 20 j 22:52	13° <del>1</del> 48'34	
					638 Sep 12 j 10:07	15° <del>1</del>	
conjunction	630 Oct 02 j 11:32	11° <del>2</del> 32'57	0°36'13				
minimum elong	630 Oct 02 j 11:32	11° <del>2</del> 32'57	0°36'12	conjunction	638 Nov 07 j 16:34	18° <del>1</del> 06'00	0°14'21
max. Earth dist.	630 Oct 01 j 21:32	11° <del>2</del> 30'45	19.51505 AU	minimum elong	638 Nov 07 j 16:34	18° <del>1</del> 06'00	0°14'21
retrograde	631 Jan 17 j 11:15	15° <del>2</del> 52'04		behind sun begin	638 Nov 07 j 13:24	18° <del>1</del> 05'32	
opposition	631 Apr 01 j 17:54	13° <del>2</del> 51'04	0°39'12	behind sun end	638 Nov 07 j 19:45	18° <del>1</del> 06'29	
min. Earth dist.	631 Apr 02 j 06:37	13° <del>2</del> 49'43	17.53505 AU	max. Earth dist.	638 Nov 07 j 18:47	18° <del>1</del> 06'20	19.93249 AU
direct	631 Jun 17 j 18:53	11° <del>2</del> 46'15		retrograde	639 Feb 22 j 19:43	22° <del>1</del> 18'49	
				opposition	639 May 09 j 12:37	20° <del>1</del> 18'37	0°14'08
conjunction	631 Oct 07 j 09:12	16° <del>2</del> 13'05	0°34'05	min. Earth dist.	639 May 09 j 09:35	20° <del>1</del> 18'56	17.96464 AU
minimum elong	631 Oct 07 j 09:12	16° <del>2</del> 13'05	0°34'05	direct	639 Jul 25 j 20:45	18° <del>1</del> 16'24	
max. Earth dist.	631 Oct 06 j 19:51	16° <del>2</del> 11'00	19.55560 AU				
retrograde	632 Jan 22 j 10:01	20° <del>2</del> 31'30		conjunction	639 Nov 12 j 07:10	22° <del>1</del> 32'22	0°11'06
opposition	632 Apr 05 j 18:44	18° <del>2</del> 30'34	0°36'41	minimum elong	639 Nov 12 j 07:10	22° <del>1</del> 32'22	0°11'07
min. Earth dist.	632 Apr 06 j 05:05	18° <del>2</del> 29'29	17.57713 AU	behind sun begin	639 Nov 12 j 02:13	22° <del>1</del> 31'37	
direct	632 Jun 21 j 22:13	16° <del>2</del> 25'59		behind sun end	639 Nov 12 j 12:07	22° <del>1</del> 33'06	
				max. Earth dist.	639 Nov 12 j 10:34	22° <del>1</del> 32'52	19.99757 AU
conjunction	632 Oct 11 j 06:16	20° <del>2</del> 51'40	0°31'44	retrograde	640 Feb 27 j 11:58	26° <del>1</del> 44'24	
minimum elong	632 Oct 11 j 06:16	20° <del>2</del> 51'40	0°31'44	opposition	640 May 13 j 09:39	24° <del>1</del> 44'22	0°10'29
max. Earth dist.	632 Oct 10 j 19:43	20° <del>2</del> 50'02	19.59929 AU	min. Earth dist.	640 May 13 j 05:05	24° <del>1</del> 44'51	18.03037 AU
retrograde	633 Jan 26 j 05:16	25° <del>2</del> 09'19		direct	640 Jul 29 j 16:15	22° <del>1</del> 42'34	
opposition	633 Apr 10 j 19:14	23° <del>2</del> 08'28	0°33'57				
min. Earth dist.	633 Apr 11 j 04:46	23° <del>2</del> 07'28	17.62234 AU	conjunction	640 Nov 15 j 21:10	26° <del>1</del> 57'05	0°07'49
direct	633 Jun 26 j 22:55	21° <del>2</del> 04'08		minimum elong	640 Nov 15 j 21:10	26° <del>1</del> 57'05	0°07'48
				behind sun begin	640 Nov 15 j 15:15	26° <del>1</del> 56'12	
conjunction	633 Oct 16 j 02:15	25° <del>2</del> 28'33	0°29'11	behind sun end	640 Nov 16 j 03:06	26° <del>1</del> 57'58	
minimum elong	633 Oct 16 j 02:15	25° <del>2</del> 28'33	0°29'11	max. Earth dist.	640 Nov 16 j 03:11	26° <del>1</del> 57'58	20.06367 AU
max. Earth dist.	633 Oct 15 j 16:32	25° <del>2</del> 27'03	19.64628 AU		641 Jan 10 j 12:59	0° <del>2</del>	
retrograde	634 Jan 31 j 02:14	29° <del>2</del> 45'25		retrograde	641 Mar 03 j 04:20	1° <del>2</del> 08'19	
opposition	634 Apr 15 j 19:23	27° <del>2</del> 44'36	0°31'01		641 Apr 26 j 15:09	30° <del>1</del>	
min. Earth dist.	634 Apr 16 j 02:28	27° <del>2</del> 43'52	17.67104 AU	opposition	641 May 18 j 05:59	29° <del>1</del> 08'28	0°06'48
direct	634 Jul 02 j 01:24	25° <del>2</del> 40'31		min. Earth dist.	641 May 17 j 23:16	29° <del>1</del> 09'10	18.09659 AU
	634 Oct 19 j 21:58	0° <del>1</del>		direct	641 Aug 03 j 12:44	27° <del>1</del> 07'07	
					641 Oct 29 j 03:44	0° <del>2</del>	
conjunction	634 Oct 20 j 21:17	0° <del>1</del> 03'38	0°26'28				
minimum elong	634 Oct 20 j 21:17	0° <del>1</del> 03'38	0°26'29	conjunction	641 Nov 20 j 10:21	1° <del>2</del> 20'09	0°04'31
max. Earth dist.	634 Oct 20 j 14:52	0° <del>1</del> 02'38	19.69673 AU	minimum elong	641 Nov 20 j 10:21	1° <del>2</del> 20'09	0°04'31
retrograde	635 Feb 04 j 20:14	4° <del>1</del> 19'41		behind sun begin	641 Nov 20 j 03:55	1° <del>2</del> 19'12	
opposition	635 Apr 20 j 19:11	2° <del>1</del> 18'56	0°27'54	behind sun end	641 Nov 20 j 16:46	1° <del>2</del> 21'06	
min. Earth dist.	635 Apr 21 j 00:43	2° <del>1</del> 18'21	17.72321 AU	max. Earth dist.	641 Nov 20 j 17:27	1° <del>2</del> 21'12	20.12993 AU
direct	635 Jul 07 j 01:52	0° <del>1</del> 15'09		retrograde	642 Mar 07 j 19:25	5° <del>2</del> 30'37	
				opposition	642 May 23 j 01:57	3° <del>2</del> 30'56	0°03'05
conjunction	635 Oct 25 j 15:21	4° <del>1</del> 36'52	0°23'37	min. Earth dist.	642 May 22 j 18:08	3° <del>2</del> 31'44	18.16284 AU
minimum elong	635 Oct 25 j 15:21	4° <del>1</del> 36'52	0°23'36	direct	642 Aug 08 j 06:35	1° <del>2</del> 29'58	
max. Earth dist.	635 Oct 25 j 10:03	4° <del>1</del> 36'03	19.75079 AU				
retrograde	636 Feb 09 j 15:22	8° <del>1</del> 52'06		conjunction	642 Nov 24 j 22:45	5° <del>2</del> 41'32	0°01'09
opposition	636 Apr 24 j 18:13	6° <del>1</del> 51'26	0°24'37	minimum elong	642 Nov 24 j 22:47	5° <del>2</del> 41'32	0°01'08
min. Earth dist.	636 Apr 24 j 21:21	6° <del>1</del> 51'07	17.77913 AU	behind sun begin	642 Nov 24 j 16:14	5° <del>2</del> 40'34	
direct	636 Jul 11 j 01:56	4° <del>1</del> 47'59		behind sun end	642 Nov 25 j 05:19	5° <del>2</del> 42'30	
				max. Earth dist.	642 Nov 25 j 08:05	5° <del>2</del> 42'56	20.19585 AU
conjunction	636 Oct 29 j 08:43	9° <del>1</del> 08'18	0°20'37	retrograde	643 Mar 12 j 11:00	9° <del>2</del> 51'14	
minimum elong	636 Oct 29 j 08:43	9° <del>1</del> 08'18	0°20'38	desc. node	643 Mar 27 j 06:04	9° <del>2</del> 45'41	
max. Earth dist.	636 Oct 29 j 06:37	9° <del>1</del> 07'59	19.80843 AU	opposition	643 May 27 j 21:08	7° <del>2</del> 51'41	0°00'-36
retrograde	637 Feb 13 j 08:52	13° <del>1</del> 22'42		min. Earth dist.	643 May 27 j 11:06	7° <del>2</del> 52'43	18.22821 AU
opposition	637 Apr 29 j 16:54	11° <del>1</del> 22'11	0°21'14	direct	643 Aug 13 j 01:12	5° <del>2</del> 51'08	
min. Earth dist.	637 Apr 29 j 18:04	11° <del>1</del> 22'04	17.83827 AU				

conjunction	643 Nov 29 j 10:32	10°♂01'14	0°-2'-16	direct	650 Sep 12 j 08:21	5°♂29'07	
minimum elong	643 Nov 29 j 10:32	10°♂01'14	0°02'17				
behind sun begin	643 Nov 29 j 04:00	10°♂00'16		conjunction	650 Dec 28 j 00:45	9°♂29'47	0°-23'-33
behind sun end	643 Nov 29 j 17:04	10°♂02'11		minimum elong	650 Dec 28 j 00:45	9°♂29'47	0°23'34
max. Earth dist.	643 Nov 29 j 20:47	10°♂02'46	20.26055 AU	max. Earth dist.	650 Dec 28 j 21:14	9°♂32'49	20.66920 AU
retrograde	644 Mar 16 j 00:54	14°♂10'10		retrograde	651 Apr 15 j 15:42	13°♂34'01	
opposition	644 May 31 j 15:33	12°♂10'43	0°-4'-16	min. Earth dist.	651 Jul 01 j 07:19	11°♂36'58	18.69574 AU
min. Earth dist.	644 May 31 j 04:55	12°♂11'48	18.29229 AU	opposition	651 Jul 02 j 04:31	11°♂34'50	0°-27'-31
direct	644 Aug 16 j 17:31	10°♂10'30		direct	651 Sep 16 j 21:04	9°♂36'40	
conjunction	644 Dec 02 j 21:36	14°♂19'10	0°-5'-34	conjunction	652 Jan 01 j 07:27	13°♂36'16	0°-26'-8
minimum elong	644 Dec 02 j 21:37	14°♂19'10	0°05'34	minimum elong	652 Jan 01 j 07:27	13°♂36'16	0°26'09
behind sun begin	644 Dec 02 j 15:19	14°♂18'14		max. Earth dist.	652 Jan 02 j 05:10	13°♂39'27	20.72147 AU
behind sun end	644 Dec 03 j 03:55	14°♂20'05		retrograde	652 Apr 19 j 00:27	17°♂40'00	
max. Earth dist.	644 Dec 03 j 09:35	14°♂20'57	20.32378 AU	opposition	652 Jul 05 j 17:20	15°♂40'54	0°-30'-18
retrograde	645 Mar 20 j 15:29	18°♂27'20		min. Earth dist.	652 Jul 04 j 20:12	15°♂43'01	18.74702 AU
opposition	645 Jun 05 j 09:18	16°♂27'58	0°-7'-54	direct	652 Sep 20 j 06:33	13°♂43'02	
min. Earth dist.	645 Jun 04 j 20:24	16°♂29'16	18.35454 AU	conjunction	653 Jan 04 j 13:47	17°♂41'36	0°-28'-36
direct	645 Aug 21 j 10:38	14°♂28'05		minimum elong	653 Jan 04 j 13:47	17°♂41'36	0°28'37
conjunction	645 Dec 07 j 07:46	18°♂35'18	0°-8'-47	max. Earth dist.	653 Jan 05 j 12:26	17°♂44'55	20.77159 AU
minimum elong	645 Dec 07 j 07:45	18°♂35'18	0°08'48	retrograde	653 Apr 23 j 11:50	21°♂44'54	
behind sun begin	645 Dec 07 j 02:05	18°♂34'28		min. Earth dist.	653 Jul 09 j 06:32	19°♂48'11	18.79578 AU
behind sun end	645 Dec 07 j 13:26	18°♂36'08		opposition	653 Jul 10 j 05:36	19°♂45'52	0°-32'-56
max. Earth dist.	645 Dec 07 j 20:52	18°♂37'15	20.38508 AU	direct	653 Sep 24 j 17:54	17°♂48'18	
retrograde	646 Mar 25 j 04:04	22°♂42'44		conjunction	654 Jan 08 j 19:43	21°♂45'56	0°-30'-54
opposition	646 Jun 10 j 02:29	20°♂43'24	0°-11'-27	minimum elong	654 Jan 08 j 19:43	21°♂45'56	0°30'54
min. Earth dist.	646 Jun 09 j 13:07	20°♂44'45	18.41504 AU	max. Earth dist.	654 Jan 09 j 19:27	21°♂49'24	20.81876 AU
direct	646 Aug 26 j 01:40	18°♂43'49		retrograde	654 Apr 27 j 20:28	25°♂48'52	
conjunction	646 Dec 11 j 17:16	22°♂49'36	0°-11'-56	opposition	654 Jul 14 j 17:31	23°♂49'54	0°-35'-23
minimum elong	646 Dec 11 j 17:16	22°♂49'36	0°11'56	min. Earth dist.	654 Jul 13 j 18:51	23°♂52'10	18.84142 AU
behind sun begin	646 Dec 11 j 12:41	22°♂48'56		direct	654 Sep 29 j 02:15	21°♂52'36	
behind sun end	646 Dec 11 j 21:52	22°♂50'16		conjunction	655 Jan 13 j 01:35	25°♂49'21	0°-33'-2
max. Earth dist.	646 Dec 12 j 08:04	22°♂51'49	20.44474 AU	minimum elong	655 Jan 13 j 01:35	25°♂49'21	0°33'03
retrograde	647 Mar 29 j 17:51	26°♂56'18		max. Earth dist.	655 Jan 14 j 01:45	25°♂52'52	20.86264 AU
opposition	647 Jun 14 j 18:36	24°♂56'59	0°-14'-54	retrograde	655 May 02 j 07:08	29°♂51'57	
min. Earth dist.	647 Jun 14 j 02:52	24°♂58'35	18.47388 AU	min. Earth dist.	655 Jul 18 j 04:31	27°♂55'27	18.88337 AU
direct	647 Aug 30 j 17:13	22°♂57'40		opposition	655 Jul 19 j 04:36	27°♂53'03	0°-37'-39
conjunction	647 Dec 16 j 02:01	27°♂02'06	0°-15'00	direct	655 Oct 03 j 12:03	25°♂56'00	
minimum elong	647 Dec 16 j 02:01	27°♂02'06	0°15'02	conjunction	656 Jan 17 j 07:17	29°♂51'58	0°-35'-1
behind sun begin	647 Dec 15 j 23:25	27°♂01'43		minimum elong	656 Jan 17 j 07:17	29°♂51'58	0°35'01
behind sun end	647 Dec 16 j 04:37	27°♂02'28		max. Earth dist.	656 Jan 18 j 08:02	29°♂55'34	20.90234 AU
max. Earth dist.	647 Dec 16 j 18:08	27°♂04'30	20.50276 AU		656 Jan 19 j 14:31	0°≈	
retrograde	648 Feb 09 j 13:50	0°♂		retrograde	656 May 05 j 15:34	3°≈54'17	
	648 Apr 02 j 04:37	1°♂08'07		opposition	656 Jul 22 j 15:28	1°≈55'25	0°-39'-44
	648 May 27 j 13:23	30°♂♂		min. Earth dist.	656 Jul 21 j 16:10	1°≈57'45	18.92090 AU
opposition	648 Jun 18 j 10:12	29°♂08'48	0°-18'-15		656 Sep 29 j 08:09	30°♂♂	
min. Earth dist.	648 Jun 17 j 18:04	29°♂10'26	18.53133 AU	direct	656 Oct 06 j 19:36	29°♂58'36	
direct	648 Sep 03 j 06:47	27°♂09'46			656 Oct 14 j 05:11	0°≈	
	648 Nov 28 j 16:44	0°♂		conjunction	657 Jan 20 j 12:44	3°≈53'50	0°-36'-48
conjunction	648 Dec 19 j 10:07	1°♂12'52	0°-17'-58	minimum elong	657 Jan 20 j 12:44	3°≈53'50	0°36'50
minimum elong	648 Dec 19 j 10:07	1°♂12'52	0°17'59	max. Earth dist.	657 Jan 21 j 13:27	3°≈57'25	20.93751 AU
max. Earth dist.	648 Dec 20 j 03:50	1°♂15'30	20.55953 AU	retrograde	657 May 10 j 01:32	7°≈55'54	
retrograde	649 Apr 06 j 17:50	5°♂18'14		min. Earth dist.	657 Jul 26 j 01:24	5°≈59'29	18.95359 AU
min. Earth dist.	649 Jun 22 j 06:16	3°♂20'49	18.58747 AU	opposition	657 Jul 27 j 01:47	5°≈57'03	0°-41'-36
opposition	649 Jun 23 j 00:53	3°♂18'56	0°-21'-29	direct	657 Oct 11 j 04:26	4°≈00'24	
direct	649 Sep 07 j 20:50	1°♂20'11		conjunction	658 Jan 24 j 18:12	7°≈54'59	0°-38'-25
conjunction	649 Dec 23 j 17:42	5°♂22'03	0°-20'-49	minimum elong	658 Jan 24 j 18:12	7°≈54'59	0°38'25
minimum elong	649 Dec 23 j 17:42	5°♂22'03	0°20'51	max. Earth dist.	658 Jan 25 j 19:12	7°≈58'36	20.96755 AU
max. Earth dist.	649 Dec 24 j 12:51	5°♂24'52	20.61499 AU	retrograde	658 May 14 j 09:34	11°≈56'51	
retrograde	650 Apr 11 j 03:19	9°♂26'49		opposition	658 Jul 31 j 11:44	9°≈57'58	0°-43'-16
opposition	650 Jun 27 j 15:08	7°♂27'34	0°-24'-34	min. Earth dist.	658 Jul 30 j 12:20	10°≈00'19	18.98111 AU
min. Earth dist.	650 Jun 26 j 20:11	7°♂29'29	18.64241 AU				



direct	658 Oct 15 j 11:18	8° $\approx$ 01'26		retrograde	666 Jun 16 j 02:57	13° $\times$ 48'27	
				min. Earth dist.	666 Sep 01 j 06:47	11° $\times$ 51'11	19.04694 AU
conjunction	659 Jan 28 j 23:31	11° $\approx$ 55'26	0°-39'-50	opposition	666 Sep 02 j 04:14	11° $\times$ 49'02	0°-48'-30
minimum elong	659 Jan 28 j 23:31	11° $\approx$ 55'26	0°39'51	direct	666 Nov 16 j 09:22	9° $\times$ 52'44	
max. Earth dist.	659 Jan 30 j 00:10	11° $\approx$ 59'00	20.99257 AU				
	659 Mar 30 j 14:33	15° $\approx$		conjunction	667 Mar 01 j 18:44	13° $\times$ 45'13	0°-43'-45
retrograde	659 May 18 j 18:57	15° $\approx$ 57'07		minimum elong	667 Mar 01 j 18:44	13° $\times$ 45'13	0°43'47
	659 Jul 08 j 17:37	15° $\times$		max. Earth dist.	667 Mar 02 j 17:44	13° $\times$ 48'30	21.04266 AU
opposition	659 Aug 04 j 21:03	13° $\approx$ 58'11	0°-44'-43	retrograde	667 Jun 20 j 13:09	17° $\times$ 47'31	
min. Earth dist.	659 Aug 03 j 20:51	14° $\approx$ 00'36	19.00356 AU	opposition	667 Sep 06 j 11:19	15° $\times$ 48'04	0°-48'-7
direct	659 Oct 19 j 19:13	12° $\approx$ 01'43		min. Earth dist.	667 Sep 05 j 14:00	15° $\times$ 50'13	19.03808 AU
	660 Jan 17 j 02:16	15° $\approx$		direct	667 Nov 20 j 14:15	13° $\times$ 51'45	
conjunction	660 Feb 02 j 04:42	15° $\approx$ 55'13	0°-41'-3	conjunction	668 Mar 05 j 01:16	17° $\times$ 44'29	0°-43'-18
minimum elong	660 Feb 02 j 04:41	15° $\approx$ 55'13	0°41'04	minimum elong	668 Mar 05 j 01:17	17° $\times$ 44'29	0°43'19
max. Earth dist.	660 Feb 03 j 05:37	15° $\approx$ 58'48	21.01247 AU	max. Earth dist.	668 Mar 05 j 23:54	17° $\times$ 47'43	21.03154 AU
retrograde	660 May 22 j 02:03	19° $\approx$ 56'46		retrograde	668 Jun 23 j 21:03	21° $\times$ 47'07	
min. Earth dist.	660 Aug 07 j 06:47	18° $\approx$ 00'04	19.02118 AU	opposition	668 Sep 09 j 18:26	19° $\times$ 47'38	0°-47'-30
opposition	660 Aug 08 j 05:56	17° $\approx$ 57'45	0°-45'-57	min. Earth dist.	668 Sep 08 j 22:42	19° $\times$ 49'38	19.02467 AU
direct	660 Oct 23 j 01:15	16° $\approx$ 01'21		direct	668 Nov 23 j 18:52	17° $\times$ 51'17	
conjunction	661 Feb 05 j 09:48	19° $\approx$ 54'24	0°-42'-3	conjunction	669 Mar 09 j 08:21	21° $\times$ 44'20	0°-42'-39
minimum elong	661 Feb 05 j 09:48	19° $\approx$ 54'24	0°42'04	minimum elong	669 Mar 09 j 08:21	21° $\times$ 44'20	0°42'41
max. Earth dist.	661 Feb 06 j 10:25	19° $\approx$ 57'56	21.02803 AU	max. Earth dist.	669 Mar 10 j 05:23	21° $\times$ 47'21	21.01590 AU
retrograde	661 May 26 j 11:16	23° $\approx$ 55'52		retrograde	669 Jun 28 j 08:08	25° $\times$ 47'22	
opposition	661 Aug 12 j 14:23	21° $\approx$ 56'46	0°-46'-56	min. Earth dist.	669 Sep 13 j 06:22	23° $\times$ 49'44	19.00654 AU
min. Earth dist.	661 Aug 11 j 14:26	21° $\approx$ 59'09	19.03470 AU	opposition	669 Sep 14 j 01:31	23° $\times$ 47'48	0°-46'-40
direct	661 Oct 27 j 08:09	20° $\approx$ 00'22		direct	669 Nov 28 j 00:24	21° $\times$ 51'22	
conjunction	662 Feb 09 j 14:48	23° $\approx$ 53'06	0°-42'-51	conjunction	670 Mar 13 j 15:58	25° $\times$ 44'50	0°-41'-47
minimum elong	662 Feb 09 j 14:48	23° $\approx$ 53'06	0°42'53	minimum elong	670 Mar 13 j 15:58	25° $\times$ 44'50	0°41'47
max. Earth dist.	662 Feb 10 j 15:50	23° $\approx$ 56'41	21.03949 AU	max. Earth dist.	670 Mar 14 j 12:12	25° $\times$ 47'43	20.99509 AU
retrograde	662 May 30 j 17:50	27° $\approx$ 54'34		retrograde	670 Jul 02 j 16:32	29° $\times$ 48'15	
opposition	662 Aug 16 j 22:33	25° $\approx$ 55'22	0°-47'-43	opposition	670 Sep 18 j 08:44	27° $\times$ 48'36	0°-45'-35
min. Earth dist.	662 Aug 15 j 23:35	25° $\approx$ 57'40	19.04432 AU	min. Earth dist.	670 Sep 17 j 15:29	27° $\times$ 50'22	18.98299 AU
direct	662 Oct 31 j 13:19	23° $\approx$ 59'00		direct	670 Dec 02 j 05:01	25° $\times$ 52'03	
conjunction	663 Feb 13 j 20:03	27° $\approx$ 51'29	0°-43'-27	conjunction	671 Mar 18 j 00:09	29° $\times$ 45'58	0°-40'-42
minimum elong	663 Feb 13 j 20:03	27° $\approx$ 51'29	0°43'27	minimum elong	671 Mar 18 j 00:09	29° $\times$ 45'58	0°40'43
max. Earth dist.	663 Feb 14 j 20:36	27° $\approx$ 55'00	21.04736 AU	max. Earth dist.	671 Mar 18 j 18:16	29° $\times$ 48'34	20.96895 AU
	663 Mar 25 j 05:01	0° $\times$			671 Mar 22 j 02:11	0° $\times$	
retrograde	663 Jun 04 j 03:13	1° $\times$ 52'59		retrograde	671 Jul 07 j 03:45	3° $\times$ 49'50	
	663 Aug 18 j 15:24	30° $\times$		opposition	671 Sep 22 j 15:49	1° $\times$ 50'03	0°-44'-17
min. Earth dist.	663 Aug 20 j 06:38	29° $\approx$ 56'04	19.05040 AU	min. Earth dist.	671 Sep 21 j 23:31	1° $\times$ 51'43	18.95410 AU
opposition	663 Aug 21 j 06:07	29° $\approx$ 53'43	0°-48'-15		671 Nov 20 j 08:31	30° $\times$	
direct	663 Nov 04 j 19:06	27° $\approx$ 57'22		direct	671 Dec 06 j 11:34	29° $\times$ 53'18	
	664 Jan 15 j 21:30	0° $\times$			671 Dec 22 j 11:46	0° $\times$	
conjunction	664 Feb 18 j 01:22	1° $\times$ 49'43	0°-43'-50	conjunction	672 Mar 21 j 08:49	3° $\times$ 47'47	0°-39'-25
minimum elong	664 Feb 18 j 01:22	1° $\times$ 49'43	0°43'52	minimum elong	672 Mar 21 j 08:49	3° $\times$ 47'47	0°39'25
max. Earth dist.	664 Feb 19 j 02:07	1° $\times$ 53'16	21.05156 AU	max. Earth dist.	672 Mar 22 j 01:58	3° $\times$ 50'14	20.93739 AU
retrograde	664 Jun 07 j 09:55	5° $\times$ 51'20		retrograde	672 Jul 10 j 12:34	7° $\times$ 52'06	
opposition	664 Aug 24 j 13:41	3° $\times$ 52'00	0°-48'-34	opposition	672 Sep 25 j 23:08	5° $\times$ 52'09	0°-42'-45
min. Earth dist.	664 Aug 23 j 15:16	3° $\times$ 54'15	19.05285 AU	min. Earth dist.	672 Sep 25 j 08:43	5° $\times$ 53'38	18.91995 AU
direct	664 Nov 07 j 23:46	1° $\times$ 55'41		direct	672 Dec 09 j 16:36	3° $\times$ 55'12	
conjunction	665 Feb 21 j 06:44	5° $\times$ 47'59	0°-44'-1	conjunction	673 Mar 25 j 17:47	7° $\times$ 50'15	0°-37'-56
minimum elong	665 Feb 21 j 06:44	5° $\times$ 47'59	0°44'02	minimum elong	673 Mar 25 j 17:47	7° $\times$ 50'15	0°37'57
max. Earth dist.	665 Feb 22 j 06:51	5° $\times$ 51'26	21.05235 AU	max. Earth dist.	673 Mar 26 j 08:51	7° $\times$ 52'24	20.90105 AU
retrograde	665 Jun 11 j 19:31	9° $\times$ 49'46		retrograde	673 Jul 14 j 23:39	11° $\times$ 55'05	
opposition	665 Aug 28 j 21:03	7° $\times$ 50'24	0°-48'-39	opposition	673 Sep 30 j 06:28	9° $\times$ 54'56	0°-41'00
min. Earth dist.	665 Aug 27 j 22:17	7° $\times$ 52'41	19.05181 AU	min. Earth dist.	673 Sep 29 j 17:05	9° $\times$ 56'18	18.88133 AU
direct	665 Nov 12 j 04:48	5° $\times$ 54'04		direct	673 Dec 13 j 23:45	7° $\times$ 57'42	
conjunction	666 Feb 25 j 12:34	9° $\times$ 46'26	0°-44'00	conjunction	674 Mar 30 j 03:31	11° $\times$ 53'28	0°-36'-15
minimum elong	666 Feb 25 j 12:34	9° $\times$ 46'26	0°44'01	minimum elong	674 Mar 30 j 03:31	11° $\times$ 53'28	0°36'16
max. Earth dist.	666 Feb 26 j 12:40	9° $\times$ 49'52	21.04939 AU	max. Earth dist.	674 Mar 30 j 17:45	11° $\times$ 55'30	20.86033 AU

retrograde	674 Jul 19 j 09:13	15° $\Upsilon$ 58'49			682 May 03 j 00:10	15° $\mathcal{B}$	
opposition	674 Oct 04 j 13:47	13° $\Upsilon$ 58'29	0°-39'-3	retrograde	682 Aug 22 j 13:18	19° $\mathcal{B}$ 12'33	
min. Earth dist.	674 Oct 04 j 02:13	13° $\Upsilon$ 59'40	18.83867 AU	opposition	682 Nov 06 j 11:22	17° $\mathcal{B}$ 11'14	0°-16'-47
direct	674 Dec 18 j 05:40	12° $\Upsilon$ 00'58		min. Earth dist.	682 Nov 06 j 11:25	17° $\mathcal{B}$ 11'14	18.41152 AU
				direct	683 Jan 19 j 23:56	15° $\mathcal{B}$ 11'26	
conjunction	675 Apr 03 j 13:45	15° $\Upsilon$ 57'30	0°-34'-22				
minimum elong	675 Apr 03 j 13:45	15° $\Upsilon$ 57'30	0°34'23	conjunction	683 May 08 j 02:18	19° $\mathcal{B}$ 17'11	0°-13'-38
max. Earth dist.	675 Apr 04 j 01:47	15° $\Upsilon$ 59'14	20.81608 AU	minimum elong	683 May 08 j 02:18	19° $\mathcal{B}$ 17'11	0°13'40
retrograde	675 Jul 23 j 20:31	20° $\Upsilon$ 03'27		behind sun begin	683 May 07 j 22:48	19° $\mathcal{B}$ 16'41	
opposition	675 Oct 08 j 21:21	18° $\Upsilon$ 02'55	0°-36'-53	behind sun end	683 May 08 j 05:47	19° $\mathcal{B}$ 17'41	
min. Earth dist.	675 Oct 08 j 10:51	18° $\Upsilon$ 04'00	18.79281 AU	max. Earth dist.	683 May 08 j 00:11	19° $\mathcal{B}$ 16'53	20.38091 AU
direct	675 Dec 22 j 12:38	16° $\Upsilon$ 05'07		retrograde	683 Aug 27 j 04:32	23° $\mathcal{B}$ 29'12	
				opposition	683 Nov 10 j 22:17	21° $\mathcal{B}$ 27'46	0°-13'-20
conjunction	676 Apr 07 j 00:31	20° $\Upsilon$ 02'30	0°-32'-19	min. Earth dist.	683 Nov 11 j 00:24	21° $\mathcal{B}$ 27'33	18.34940 AU
minimum elong	676 Apr 07 j 00:31	20° $\Upsilon$ 02'30	0°32'21	direct	684 Jan 24 j 11:30	19° $\mathcal{B}$ 27'37	
max. Earth dist.	676 Apr 07 j 11:52	20° $\Upsilon$ 04'08	20.76869 AU				
retrograde	676 Jul 27 j 07:12	24° $\Upsilon$ 09'05		conjunction	684 May 11 j 19:45	23° $\mathcal{B}$ 34'47	0°-10'-29
opposition	676 Oct 12 j 05:09	22° $\Upsilon$ 08'22	0°-34'-31	minimum elong	684 May 11 j 19:46	23° $\mathcal{B}$ 34'47	0°10'29
min. Earth dist.	676 Oct 11 j 20:12	22° $\Upsilon$ 09'18	18.74409 AU	behind sun begin	684 May 11 j 14:32	23° $\mathcal{B}$ 34'02	
direct	676 Dec 25 j 19:40	20° $\Upsilon$ 10'17		behind sun end	684 May 12 j 00:59	23° $\mathcal{B}$ 35'32	
				max. Earth dist.	684 May 11 j 16:35	23° $\mathcal{B}$ 34'20	20.31763 AU
conjunction	677 Apr 11 j 11:58	24° $\Upsilon$ 08'38	0°-30'-6	retrograde	684 Aug 30 j 19:44	27° $\mathcal{B}$ 47'37	
minimum elong	677 Apr 11 j 11:58	24° $\Upsilon$ 08'38	0°30'06	opposition	684 Nov 14 j 09:45	25° $\mathcal{B}$ 46'05	0°-9'-46
max. Earth dist.	677 Apr 11 j 21:01	24° $\Upsilon$ 09'56	20.71893 AU	min. Earth dist.	684 Nov 14 j 13:24	25° $\mathcal{B}$ 45'42	18.28503 AU
retrograde	677 Jul 31 j 19:04	28° $\Upsilon$ 15'53		direct	685 Jan 27 j 23:43	23° $\mathcal{B}$ 45'33	
opposition	677 Oct 16 j 13:09	26° $\Upsilon$ 15'01	0°-31'-59				
min. Earth dist.	677 Oct 16 j 05:21	26° $\Upsilon$ 15'50	18.69324 AU	conjunction	685 May 16 j 14:05	27° $\mathcal{B}$ 54'07	0°-7'-15
direct	677 Dec 30 j 02:42	24° $\Upsilon$ 16'38		minimum elong	685 May 16 j 14:05	27° $\mathcal{B}$ 54'07	0°07'16
				behind sun begin	685 May 16 j 07:54	27° $\mathcal{B}$ 53'14	
conjunction	678 Apr 16 j 00:19	28° $\Upsilon$ 16'02	0°-27'-42	behind sun end	685 May 16 j 20:16	27° $\mathcal{B}$ 55'01	
minimum elong	678 Apr 16 j 00:19	28° $\Upsilon$ 16'02	0°27'44	max. Earth dist.	685 May 16 j 07:30	27° $\mathcal{B}$ 53'10	20.25243 AU
max. Earth dist.	678 Apr 16 j 08:37	28° $\Upsilon$ 17'13	20.66701 AU		685 Jun 22 j 16:24	0° $\mathcal{B}$	
	678 May 16 j 21:44	0° $\mathcal{B}$		retrograde	685 Sep 04 j 11:36	2° $\mathcal{B}$ 07'46	
retrograde	678 Aug 05 j 07:12	2° $\mathcal{B}$ 23'59		opposition	685 Nov 18 j 21:41	0° $\mathcal{B}$ 06'05	0°-6'-8
opposition	678 Oct 20 j 21:32	0° $\mathcal{B}$ 23'00	0°-29'-15	min. Earth dist.	685 Nov 19 j 03:36	0° $\mathcal{B}$ 05'27	18.21908 AU
min. Earth dist.	678 Oct 20 j 15:15	0° $\mathcal{B}$ 23'39	18.64031 AU		685 Nov 21 j 06:53	30° $\mathcal{B}$	
	678 Oct 30 j 03:45	30° $\mathcal{B}$		direct	686 Feb 01 j 12:39	28° $\mathcal{B}$ 05'07	
direct	679 Jan 03 j 10:48	28° $\Upsilon$ 24'21			686 Apr 11 j 07:50	0° $\mathcal{B}$	
	679 Mar 07 j 00:43	0° $\mathcal{B}$					
conjunction	679 Apr 20 j 13:17	2° $\mathcal{B}$ 24'51	0°-25'-10	conjunction	686 May 21 j 09:26	2° $\mathcal{B}$ 15'09	0°-3'-57
minimum elong	679 Apr 20 j 13:17	2° $\mathcal{B}$ 24'51	0°25'11	minimum elong	686 May 21 j 09:25	2° $\mathcal{B}$ 15'09	0°03'58
max. Earth dist.	679 Apr 20 j 19:01	2° $\mathcal{B}$ 25'41	20.61331 AU	behind sun begin	686 May 21 j 02:44	2° $\mathcal{B}$ 14'12	
retrograde	679 Aug 09 j 19:52	6° $\mathcal{B}$ 33'35		behind sun end	686 May 21 j 16:06	2° $\mathcal{B}$ 16'07	
opposition	679 Oct 25 j 06:14	4° $\mathcal{B}$ 32'29	0°-26'-22	max. Earth dist.	686 May 21 j 01:49	2° $\mathcal{B}$ 14'03	20.18580 AU
min. Earth dist.	679 Oct 25 j 01:18	4° $\mathcal{B}$ 33'00	18.58576 AU	retrograde	686 Sep 09 j 04:30	6° $\mathcal{B}$ 29'34	
direct	680 Jan 07 j 18:52	2° $\mathcal{B}$ 33'32		opposition	686 Nov 23 j 10:12	4° $\mathcal{B}$ 27'44	0°-2'-27
				min. Earth dist.	686 Nov 23 j 17:25	4° $\mathcal{B}$ 26'58	18.15193 AU
conjunction	680 Apr 24 j 03:13	6° $\mathcal{B}$ 35'16	0°-22'-29	direct	687 Feb 06 j 02:40	2° $\mathcal{B}$ 26'20	
minimum elong	680 Apr 24 j 03:13	6° $\mathcal{B}$ 35'16	0°22'30				
max. Earth dist.	680 Apr 24 j 08:12	6° $\mathcal{B}$ 35'59	20.55791 AU	conjunction	687 May 26 j 05:14	6° $\mathcal{B}$ 37'49	0°00'-33
retrograde	680 Aug 13 j 09:09	10° $\mathcal{B}$ 44'48		minimum elong	687 May 26 j 05:13	6° $\mathcal{B}$ 37'49	0°00'34
opposition	680 Oct 28 j 15:28	8° $\mathcal{B}$ 43'37	0°-23'-19	behind sun begin	687 May 25 j 22:28	6° $\mathcal{B}$ 36'51	
min. Earth dist.	680 Oct 28 j 12:02	8° $\mathcal{B}$ 43'59	18.52949 AU	behind sun end	687 May 26 j 11:59	6° $\mathcal{B}$ 38'48	
direct	681 Jan 11 j 03:50	6° $\mathcal{B}$ 44'25		max. Earth dist.	687 May 25 j 18:28	6° $\mathcal{B}$ 36'14	20.11842 AU
				asc. node	687 Jul 25 j 01:28	9° $\mathcal{B}$ 48'07	
conjunction	681 Apr 28 j 17:49	10° $\mathcal{B}$ 47'25	0°-19'-39	retrograde	687 Sep 13 j 21:02	10° $\mathcal{B}$ 53'01	
minimum elong	681 Apr 28 j 17:49	10° $\mathcal{B}$ 47'25	0°19'40	opposition	687 Nov 27 j 23:20	8° $\mathcal{B}$ 51'01	0°01'17
max. Earth dist.	681 Apr 28 j 20:00	10° $\mathcal{B}$ 47'44	20.50093 AU	min. Earth dist.	687 Nov 28 j 08:45	8° $\mathcal{B}$ 50'00	18.08457 AU
retrograde	681 Aug 17 j 23:13	14° $\mathcal{B}$ 57'47		direct	688 Feb 10 j 16:32	6° $\mathcal{B}$ 49'09	
opposition	681 Nov 02 j 01:12	12° $\mathcal{B}$ 56'31	0°-20'-7				
min. Earth dist.	681 Nov 01 j 23:32	12° $\mathcal{B}$ 56'42	18.47157 AU	conjunction	688 May 30 j 02:01	11° $\mathcal{B}$ 02'07	0°02'54
direct	682 Jan 15 j 13:37	10° $\mathcal{B}$ 57'01		minimum elong	688 May 30 j 01:59	11° $\mathcal{B}$ 02'07	0°02'53
				behind sun begin	688 May 29 j 19:14	11° $\mathcal{B}$ 01'08	
conjunction	682 May 03 j 09:41	15° $\mathcal{B}$ 01'23	0°-16'-42	behind sun end	688 May 30 j 08:45	11° $\mathcal{B}$ 03'06	
minimum elong	682 May 03 j 09:41	15° $\mathcal{B}$ 01'23	0°16'42	max. Earth dist.	688 May 29 j 14:32	11° $\mathcal{B}$ 00'26	20.05117 AU
max. Earth dist.	682 May 03 j 10:52	15° $\mathcal{B}$ 01'33	20.44197 AU	retrograde	688 Sep 17 j 15:43	15° $\mathcal{B}$ 18'03	
				opposition	688 Dec 01 j 12:56	13° $\mathcal{B}$ 15'54	0°05'01

min. Earth dist.	688 Dec 01 j 23:14	13°II14'48	18.01763 AU	max. Earth dist.	696 Jul 06 j 01:59	17°☾13'48	19.58974 AU
direct	689 Feb 14 j 08:06	11°II13'35					
conjunction	689 Jun 03 j 23:19	15°II28'02	0°06'16	conjunction	696 Jul 07 j 01:05	17°☾17'21	0°28'07
minimum elong	689 Jun 03 j 23:20	15°II28'02	0°06'17	minimum elong	696 Jul 07 j 01:05	17°☾17'21	0°28'07
behind sun begin	689 Jun 03 j 16:55	15°II27'06		retrograde	696 Oct 24 j 10:32	21°☾38'38	
behind sun end	689 Jun 04 j 05:44	15°II28'58		opposition	697 Jan 06 j 03:30	19°☾36'09	0°32'47
max. Earth dist.	689 Jun 03 j 09:02	15°II25'54	19.98474 AU	min. Earth dist.	697 Jan 06 j 22:44	19°☾34'03	17.56739 AU
retrograde	689 Sep 22 j 09:11	19°II44'43		direct	697 Mar 22 j 12:10	17°☾31'11	
opposition	689 Dec 06 j 03:19	17°II42'25	0°08'46	max. Earth dist.	697 Jul 11 j 03:55	21°☾53'18	19.54527 AU
min. Earth dist.	689 Dec 06 j 15:46	17°II41'04	17.95197 AU	conjunction	697 Jul 12 j 03:58	21°☾57'00	0°30'46
direct	690 Feb 18 j 23:10	15°II39'38		minimum elong	697 Jul 12 j 03:58	21°☾57'00	0°30'46
				retrograde	697 Oct 29 j 08:18	26°☾18'45	
conjunction	690 Jun 08 j 21:36	19°II55'35	0°09'36	opposition	698 Jan 10 j 23:49	24°☾16'18	0°35'38
minimum elong	690 Jun 08 j 21:37	19°II55'35	0°09'36	min. Earth dist.	698 Jan 11 j 20:59	24°☾14'00	17.52445 AU
behind sun begin	690 Jun 08 j 16:03	19°II54'46		direct	698 Mar 27 j 10:16	22°☾11'06	
behind sun end	690 Jun 09 j 03:10	19°II56'24		max. Earth dist.	698 Jul 16 j 05:31	26°☾34'05	19.50383 AU
max. Earth dist.	690 Jun 08 j 06:44	19°II53'21	19.91986 AU				
retrograde	690 Sep 27 j 05:09	24°II12'59		conjunction	698 Jul 17 j 07:06	26°☾38'02	0°33'12
opposition	690 Dec 10 j 18:12	22°II10'34	0°12'28	minimum elong	698 Jul 17 j 07:06	26°☾38'02	0°33'12
min. Earth dist.	690 Dec 11 j 07:07	22°II09'10	17.88812 AU		698 Sep 16 j 21:18	0°♂	
direct	691 Feb 23 j 16:10	20°II07'23		retrograde	698 Nov 03 j 07:28	1°♂00'12	
					698 Dec 21 j 22:39	30°♂☾	
conjunction	691 Jun 13 j 20:26	24°II24'48	0°12'54	opposition	699 Jan 15 j 20:37	28°☾57'46	0°38'15
minimum elong	691 Jun 13 j 20:26	24°II24'48	0°12'54	min. Earth dist.	699 Jan 16 j 17:41	28°☾55'28	17.48462 AU
behind sun begin	691 Jun 13 j 16:25	24°II24'13		direct	699 Apr 01 j 10:53	26°☾52'19	
behind sun end	691 Jun 14 j 00:27	24°II25'23			699 Jun 30 j 13:05	0°♂	
max. Earth dist.	691 Jun 13 j 03:11	24°II22'13	19.85716 AU	max. Earth dist.	699 Jul 21 j 08:57	1°♂16'19	19.46558 AU
retrograde	691 Oct 01 j 23:45	28°II42'55					
opposition	691 Dec 15 j 10:00	26°II40'24	0°16'07	conjunction	699 Jul 22 j 10:39	1°♂20'18	0°35'26
min. Earth dist.	691 Dec 16 j 00:52	26°II38'47	17.82689 AU	minimum elong	699 Jul 22 j 10:39	1°♂20'18	0°35'27
direct	692 Feb 28 j 08:45	24°II36'50		retrograde	699 Nov 08 j 05:46	5°♂42'47	
				opposition	700 Jan 20 j 18:12	3°♂40'22	0°40'37
conjunction	692 Jun 17 j 19:55	28°II55'44	0°16'09	min. Earth dist.	700 Jan 21 j 16:43	3°♂37'54	17.44824 AU
minimum elong	692 Jun 17 j 19:55	28°II55'44	0°16'09	direct	700 Apr 05 j 10:32	1°♂34'41	
max. Earth dist.	692 Jun 17 j 02:09	28°II53'03	19.79737 AU	max. Earth dist.	700 Jul 25 j 11:01	5°♂59'21	19.43118 AU
	692 Jul 05 j 16:25	0°☾					
retrograde	692 Oct 05 j 20:44	3°☾14'32		conjunction	700 Jul 26 j 14:11	6°♂03'34	0°37'26
opposition	692 Dec 19 j 02:23	1°☾11'58	0°19'42	minimum elong	700 Jul 26 j 14:10	6°♂03'34	0°37'26
min. Earth dist.	692 Dec 19 j 17:22	1°☾10'21	17.76862 AU	retrograde	700 Nov 12 j 05:40	10°♂26'20	
	693 Jan 17 j 14:01	30°♂II		opposition	701 Jan 24 j 16:12	8°♂23'53	0°42'43
direct	693 Mar 04 j 03:17	29°II08'04		min. Earth dist.	701 Jan 25 j 14:30	8°♂21'27	17.41589 AU
	693 Apr 17 j 22:44	0°☾		direct	701 Apr 10 j 12:33	6°♂17'58	
conjunction	693 Jun 22 j 20:14	3°☾28'26	0°19'19	conjunction	701 Jul 31 j 18:05	10°♂47'41	0°39'12
minimum elong	693 Jun 22 j 20:14	3°☾28'26	0°19'18	minimum elong	701 Jul 31 j 18:05	10°♂47'41	0°39'12
max. Earth dist.	693 Jun 22 j 00:34	3°☾25'27	19.74065 AU	max. Earth dist.	701 Jul 30 j 15:36	10°♂43'33	19.40089 AU
retrograde	693 Oct 10 j 16:32	7°☾47'55			701 Oct 28 j 19:35	15°♂	
opposition	693 Dec 23 j 19:31	5°☾45'21	0°23'11	retrograde	701 Nov 17 j 04:37	15°♂10'35	
min. Earth dist.	693 Dec 24 j 12:32	5°☾43'30	17.71363 AU		701 Dec 06 j 19:25	15°♂♂	
direct	694 Mar 08 j 21:22	3°☾41'08		opposition	702 Jan 29 j 14:46	13°♂08'10	0°44'32
				min. Earth dist.	702 Jan 30 j 13:58	13°♂05'38	17.38792 AU
conjunction	694 Jun 27 j 21:18	8°☾02'57	0°22'22	direct	702 Apr 15 j 13:17	11°♂02'02	
minimum elong	694 Jun 27 j 21:18	8°☾02'57	0°22'23		702 Jul 28 j 05:58	15°♂	
max. Earth dist.	694 Jun 27 j 00:47	7°☾59'50	19.68730 AU				
retrograde	694 Oct 15 j 14:45	12°☾23'05		conjunction	702 Aug 05 j 21:46	15°♂32'24	0°40'41
opposition	694 Dec 28 j 13:23	10°☾20'32	0°26'32	minimum elong	702 Aug 05 j 21:46	15°♂32'24	0°40'41
min. Earth dist.	694 Dec 29 j 06:30	10°☾18'40	17.66184 AU	max. Earth dist.	702 Aug 04 j 18:09	15°♂28'06	19.37544 AU
direct	695 Mar 13 j 17:51	8°☾16'04		retrograde	702 Nov 22 j 05:02	19°♂55'26	
				opposition	703 Feb 03 j 13:51	17°♂53'00	0°46'03
conjunction	695 Jul 02 j 22:51	12°☾39'17	0°25'19	min. Earth dist.	703 Feb 04 j 12:37	17°♂50'30	17.36514 AU
minimum elong	695 Jul 02 j 22:50	12°☾39'17	0°25'19	direct	703 Apr 20 j 15:21	15°♂46'41	
max. Earth dist.	695 Jul 02 j 00:59	12°☾35'57	19.63696 AU	max. Earth dist.	703 Aug 09 j 23:14	20°♂13'30	19.35532 AU
retrograde	695 Oct 20 j 11:37	17°☾00'01					
opposition	696 Jan 02 j 08:11	14°☾57'31	0°29'45	conjunction	703 Aug 11 j 01:21	20°♂17'36	0°41'53
min. Earth dist.	696 Jan 03 j 03:21	14°☾55'26	17.61315 AU	minimum elong	703 Aug 11 j 01:21	20°♂17'36	0°41'53
direct	696 Mar 17 j 13:41	12°☾52'48		retrograde	703 Nov 27 j 04:45	24°♂40'38	

opposition	704 Feb 08 j 13:25	22°♏38'13	0°47'15	min. Earth dist.	712 Mar 18 j 12:45	0°♑39'09	17.42524 AU
min. Earth dist.	704 Feb 09 j 12:12	22°♏35'44	17.34789 AU		712 Apr 03 j 00:58	30°♑♐	
direct	704 Apr 24 j 16:55	20°♏31'48		direct	712 Jun 02 j 19:30	28°♑35'16	
max. Earth dist.	704 Aug 14 j 02:01	24°♏58'53	19.34110 AU		712 Jul 30 j 21:45	0°♑	
conjunction	704 Aug 15 j 04:45	25°♏03'05	0°42'49	conjunction	712 Sep 22 j 20:42	3°♑04'56	0°39'36
minimum elong	704 Aug 15 j 04:45	25°♏03'05	0°42'49	minimum elong	712 Sep 22 j 20:42	3°♑04'56	0°39'36
retrograde	704 Dec 01 j 04:50	29°♏26'05		max. Earth dist.	712 Sep 22 j 03:24	3°♑02'13	19.44015 AU
opposition	705 Feb 12 j 13:13	27°♏23'42	0°48'07	retrograde	713 Jan 07 j 22:24	7°♑25'20	
min. Earth dist.	705 Feb 13 j 11:29	27°♏21'16	17.33686 AU	opposition	713 Mar 22 j 22:32	5°♑24'02	0°43'15
direct	705 Apr 29 j 18:47	25°♏17'12		min. Earth dist.	713 Mar 23 j 14:12	5°♑22'22	17.45655 AU
max. Earth dist.	705 Aug 19 j 07:13	29°♏44'52	19.33322 AU	direct	713 Jun 07 j 21:41	3°♑18'40	
conjunction	705 Aug 20 j 08:10	29°♏48'47	0°43'26	conjunction	713 Sep 27 j 20:14	7°♑47'31	0°37'55
minimum elong	705 Aug 20 j 08:10	29°♏48'47	0°43'26	minimum elong	713 Sep 27 j 20:14	7°♑47'31	0°37'55
	705 Aug 23 j 07:33	0°♐		max. Earth dist.	713 Sep 27 j 03:47	7°♑44'56	19.47338 AU
retrograde	705 Dec 06 j 04:55	4°♐11'40		retrograde	714 Jan 12 j 21:36	12°♑07'18	
opposition	706 Feb 17 j 13:34	2°♐09'22	0°48'40	opposition	714 Mar 27 j 23:55	10°♑06'07	0°41'14
min. Earth dist.	706 Feb 18 j 11:05	2°♐07'01	17.33214 AU	min. Earth dist.	714 Mar 28 j 13:15	10°♑04'42	17.49145 AU
direct	706 May 04 j 21:48	0°♐02'52		direct	714 Jun 13 j 01:37	8°♑00'58	
max. Earth dist.	706 Aug 24 j 10:07	4°♐30'39	19.33179 AU				
conjunction	706 Aug 25 j 11:03	4°♐34'35	0°43'47	conjunction	714 Oct 02 j 18:56	12°♑28'52	0°36'00
minimum elong	706 Aug 25 j 11:03	4°♐34'35	0°43'47	minimum elong	714 Oct 02 j 18:56	12°♑28'52	0°36'00
retrograde	706 Dec 11 j 04:04	8°♐57'19		max. Earth dist.	714 Oct 02 j 04:49	12°♑26'39	19.51006 AU
opposition	707 Feb 22 j 14:16	6°♐55'08	0°48'53	retrograde	715 Jan 17 j 18:22	16°♑47'59	
min. Earth dist.	707 Feb 23 j 11:16	6°♐52'51	17.33400 AU	opposition	715 Apr 02 j 01:14	14°♑46'53	0°38'56
direct	707 May 10 j 00:01	4°♐48'42		min. Earth dist.	715 Apr 02 j 14:09	14°♑45'31	17.52987 AU
				direct	715 Jun 18 j 03:19	12°♑41'58	
conjunction	707 Aug 30 j 13:49	9°♐20'25	0°43'49	conjunction	715 Oct 07 j 16:44	17°♑08'48	0°33'50
minimum elong	707 Aug 30 j 13:49	9°♐20'25	0°43'49	minimum elong	715 Oct 07 j 16:44	17°♑08'48	0°33'50
max. Earth dist.	707 Aug 29 j 14:45	9°♐16'48	19.33684 AU	max. Earth dist.	715 Oct 07 j 03:27	17°♑06'43	19.55036 AU
retrograde	707 Dec 16 j 04:17	13°♐42'56		retrograde	716 Jan 22 j 16:22	21°♑27'13	
opposition	708 Feb 27 j 15:07	11°♐40'54	0°48'45	opposition	716 Apr 06 j 01:53	19°♑26'11	0°36'24
min. Earth dist.	708 Feb 28 j 10:52	11°♐38'45	17.34197 AU	min. Earth dist.	716 Apr 06 j 12:19	19°♑25'05	17.57188 AU
direct	708 May 14 j 04:19	9°♐34'35		direct	716 Jun 22 j 05:43	17°♑21'29	
conjunction	708 Sep 03 j 16:08	14°♐06'11	0°43'33	conjunction	716 Oct 11 j 13:47	21°♑47'12	0°31'28
minimum elong	708 Sep 03 j 16:08	14°♐06'11	0°43'33	minimum elong	716 Oct 11 j 13:47	21°♑47'12	0°31'28
max. Earth dist.	708 Sep 02 j 17:34	14°♐02'38	19.34775 AU	max. Earth dist.	716 Oct 11 j 03:18	21°♑45'33	19.59418 AU
retrograde	708 Dec 20 j 02:46	18°♐28'26		retrograde	717 Jan 26 j 12:10	26°♑04'50	
opposition	709 Mar 03 j 16:22	16°♐26'33	0°48'18	opposition	717 Apr 11 j 02:29	24°♑03'53	0°33'39
min. Earth dist.	709 Mar 04 j 11:56	16°♐24'26	17.35568 AU	min. Earth dist.	717 Apr 11 j 12:03	24°♑02'53	17.61749 AU
direct	709 May 19 j 07:02	14°♐20'23		direct	717 Jun 27 j 06:53	21°♑59'27	
conjunction	709 Sep 08 j 18:07	18°♐51'44	0°43'00	conjunction	717 Oct 16 j 09:38	26°♑23'55	0°28'54
minimum elong	709 Sep 08 j 18:07	18°♐51'44	0°43'01	minimum elong	717 Oct 16 j 09:38	26°♑23'55	0°28'54
max. Earth dist.	709 Sep 07 j 21:01	18°♐48'24	19.36409 AU	max. Earth dist.	717 Oct 16 j 00:10	26°♑22'26	19.64175 AU
retrograde	709 Dec 25 j 02:59	23°♐13'36			717 Dec 23 j 12:30	0°♐	
opposition	710 Mar 08 j 17:46	21°♐11'53	0°47'31	retrograde	718 Jan 31 j 09:02	0°♐40'48	
min. Earth dist.	710 Mar 09 j 11:41	21°♐09'57	17.37436 AU		718 Mar 12 j 11:46	30°♐♑	
direct	710 May 24 j 12:11	19°♐05'55		opposition	718 Apr 16 j 02:33	28°♑39'56	0°30'41
conjunction	710 Sep 13 j 19:36	23°♐36'50	0°42'09	min. Earth dist.	718 Apr 16 j 09:22	28°♑39'13	17.66700 AU
minimum elong	710 Sep 13 j 19:36	23°♐36'50	0°42'09	direct	718 Jul 02 j 07:52	26°♑35'47	
max. Earth dist.	710 Sep 12 j 23:34	23°♐33'41	19.38515 AU		718 Oct 05 j 07:07	0°♐	
retrograde	710 Dec 30 j 01:01	27°♐58'18		conjunction	718 Oct 21 j 04:49	0°♐58'57	0°26'11
opposition	711 Mar 13 j 19:27	25°♐56'44	0°46'24	minimum elong	718 Oct 21 j 04:49	0°♐58'57	0°26'10
min. Earth dist.	711 Mar 14 j 13:14	25°♐54'49	17.39776 AU	max. Earth dist.	718 Oct 20 j 22:36	0°♐58'00	19.69322 AU
direct	711 May 29 j 14:37	23°♐50'57		retrograde	719 Feb 05 j 03:54	5°♐15'02	
conjunction	711 Sep 18 j 20:22	28°♐21'18	0°41'01	opposition	719 Apr 21 j 02:15	3°♐14'18	0°27'33
minimum elong	711 Sep 18 j 20:22	28°♐21'18	0°41'01	min. Earth dist.	719 Apr 21 j 07:40	3°♐13'44	17.72036 AU
max. Earth dist.	711 Sep 18 j 01:28	28°♐18'20	19.41074 AU	direct	719 Jul 07 j 08:27	1°♐10'31	
	711 Oct 15 j 13:28	0°♑		conjunction	719 Oct 25 j 22:53	5°♐32'20	0°23'18
retrograde	712 Jan 04 j 01:02	2°♑42'17		minimum elong	719 Oct 25 j 22:53	5°♐32'20	0°23'19
opposition	712 Mar 17 j 21:00	0°♑40'51	0°44'59	max. Earth dist.	719 Oct 25 j 17:42	5°♐31'32	19.74854 AU

retrograde	720 Feb 09 j 23:22	9° <del>M</del> 47'39		conjunction	726 Nov 25 j 07:24	6° <del>Σ</del> 40'10	0°00'45
opposition	720 Apr 25 j 01:22	7° <del>M</del> 47'02	0°24'17	minimum elong	726 Nov 25 j 07:23	6° <del>Σ</del> 40'10	0°00'46
min. Earth dist.	720 Apr 25 j 04:10	7° <del>M</del> 46'45	17.77744 AU	behind sun begin	726 Nov 25 j 00:52	6° <del>Σ</del> 39'12	
direct	720 Jul 11 j 08:06	5° <del>M</del> 43'37		behind sun end	726 Nov 25 j 13:55	6° <del>Σ</del> 41'08	
				max. Earth dist.	726 Nov 25 j 16:11	6° <del>Σ</del> 41'29	20.19261 AU
conjunction	720 Oct 29 j 16:18	10° <del>M</del> 04'06	0°20'18	desc. node	727 Feb 13 j 04:26	10° <del>Σ</del> 30'02	
minimum elong	720 Oct 29 j 16:18	10° <del>M</del> 04'06	0°20'18	retrograde	727 Mar 12 j 19:20	10° <del>Σ</del> 49'55	
max. Earth dist.	720 Oct 29 j 14:21	10° <del>M</del> 03'48	19.80726 AU	opposition	727 May 28 j 04:48	8° <del>Σ</del> 50'24	0°-1'-1
retrograde	721 Feb 13 j 17:01	14° <del>M</del> 18'36		min. Earth dist.	727 May 27 j 19:22	8° <del>Σ</del> 51'21	18.22429 AU
opposition	721 Apr 30 j 00:02	12° <del>M</del> 18'11	0°20'52	direct	727 Aug 13 j 09:26	6° <del>Σ</del> 49'48	
min. Earth dist.	721 Apr 30 j 01:13	12° <del>M</del> 18'03	17.83752 AU				
direct	721 Jul 16 j 07:47	10° <del>M</del> 15'11		conjunction	727 Nov 29 j 19:10	11° <del>Σ</del> 00'02	0°-2'-39
				minimum elong	727 Nov 29 j 19:11	11° <del>Σ</del> 00'02	0°02'40
conjunction	721 Nov 03 j 08:44	14° <del>M</del> 34'15	0°17'12	behind sun begin	727 Nov 29 j 12:39	10° <del>Σ</del> 59'04	
minimum elong	721 Nov 03 j 08:43	14° <del>M</del> 34'15	0°17'12	behind sun end	727 Nov 30 j 01:43	11° <del>Σ</del> 01'00	
max. Earth dist.	721 Nov 03 j 07:48	14° <del>M</del> 34'07	19.86877 AU	max. Earth dist.	727 Nov 30 j 04:46	11° <del>Σ</del> 01'28	20.25594 AU
	721 Nov 10 j 07:38	15° <del>M</del>		retrograde	728 Mar 16 j 09:19	15° <del>Σ</del> 09'00	
retrograde	722 Feb 18 j 11:23	18° <del>M</del> 47'59		opposition	728 May 31 j 23:26	13° <del>Σ</del> 09'32	0°-4'-42
opposition	722 May 04 j 22:17	16° <del>M</del> 47'44	0°17'21	min. Earth dist.	728 May 31 j 13:12	13° <del>Σ</del> 10'34	18.28701 AU
min. Earth dist.	722 May 04 j 21:16	16° <del>M</del> 47'50	17.90021 AU	direct	728 Aug 17 j 01:18	11° <del>Σ</del> 09'15	
	722 Jun 26 j 19:39	15° <del>R</del> <del>M</del>					
direct	722 Jul 21 j 05:39	14° <del>M</del> 45'10		conjunction	728 Dec 03 j 06:14	15° <del>Σ</del> 18'00	0°-5'-56
	722 Aug 14 j 04:52	15° <del>M</del>		minimum elong	728 Dec 03 j 06:14	15° <del>Σ</del> 18'00	0°05'57
				behind sun begin	728 Dec 02 j 23:59	15° <del>Σ</del> 17'05	
conjunction	722 Nov 08 j 00:24	19° <del>M</del> 02'48	0°14'01	behind sun end	728 Dec 03 j 12:28	15° <del>Σ</del> 18'55	
minimum elong	722 Nov 08 j 00:24	19° <del>M</del> 02'48	0°14'01	max. Earth dist.	728 Dec 03 j 17:54	15° <del>Σ</del> 19'45	20.31791 AU
behind sun begin	722 Nov 07 j 20:58	19° <del>M</del> 02'17		retrograde	729 Mar 20 j 23:35	19° <del>Σ</del> 26'10	
behind sun end	722 Nov 08 j 03:50	19° <del>M</del> 03'19		opposition	729 Jun 05 j 17:13	17° <del>Σ</del> 26'45	0°-8'-19
max. Earth dist.	722 Nov 08 j 02:32	19° <del>M</del> 03'07	19.93239 AU	min. Earth dist.	729 Jun 05 j 04:48	17° <del>Σ</del> 28'00	18.34818 AU
retrograde	723 Feb 23 j 03:48	23° <del>M</del> 15'45		direct	729 Aug 21 j 19:37	15° <del>Σ</del> 26'46	
opposition	723 May 09 j 19:59	21° <del>M</del> 15'41	0°13'45				
min. Earth dist.	723 May 09 j 17:13	21° <del>M</del> 15'58	17.96448 AU	conjunction	729 Dec 07 j 16:26	19° <del>Σ</del> 34'02	0°-9'-9
direct	723 Jul 26 j 03:50	19° <del>M</del> 13'33		minimum elong	729 Dec 07 j 16:26	19° <del>Σ</del> 34'02	0°09'10
				behind sun begin	729 Dec 07 j 10:51	19° <del>Σ</del> 33'13	
conjunction	723 Nov 12 j 15:14	23° <del>M</del> 29'43	0°10'45	behind sun end	729 Dec 07 j 22:00	19° <del>Σ</del> 34'51	
minimum elong	723 Nov 12 j 15:14	23° <del>M</del> 29'43	0°10'45	max. Earth dist.	729 Dec 08 j 05:11	19° <del>Σ</del> 35'57	20.37843 AU
behind sun begin	723 Nov 12 j 10:09	23° <del>M</del> 28'57		retrograde	730 Mar 25 j 12:08	23° <del>Σ</del> 41'28	
behind sun end	723 Nov 12 j 20:19	23° <del>M</del> 30'28		opposition	730 Jun 10 j 10:23	21° <del>Σ</del> 42'02	0°-11'-52
max. Earth dist.	723 Nov 12 j 18:15	23° <del>M</del> 30'09	19.99725 AU	min. Earth dist.	730 Jun 09 j 21:16	21° <del>Σ</del> 43'22	18.40824 AU
retrograde	724 Feb 27 j 20:44	27° <del>M</del> 41'52		direct	730 Aug 26 j 09:58	19° <del>Σ</del> 42'20	
opposition	724 May 13 j 16:59	25° <del>M</del> 41'58	0°10'05				
min. Earth dist.	724 May 13 j 12:37	25° <del>M</del> 42'25	18.02980 AU	conjunction	730 Dec 12 j 01:54	23° <del>Σ</del> 48'11	0°-12'-18
direct	724 Jul 29 j 23:35	23° <del>M</del> 40'14		minimum elong	730 Dec 12 j 01:54	23° <del>Σ</del> 48'11	0°12'20
				behind sun begin	730 Dec 11 j 21:29	23° <del>Σ</del> 47'32	
conjunction	724 Nov 16 j 05:30	27° <del>M</del> 54'57	0°07'27	behind sun end	730 Dec 12 j 06:19	23° <del>Σ</del> 48'49	
minimum elong	724 Nov 16 j 05:29	27° <del>M</del> 54'57	0°07'28	max. Earth dist.	730 Dec 12 j 16:44	23° <del>Σ</del> 50'23	20.43792 AU
behind sun begin	724 Nov 15 j 23:30	27° <del>M</del> 54'04		retrograde	731 Mar 30 j 01:12	27° <del>Σ</del> 54'52	
behind sun end	724 Nov 16 j 11:29	27° <del>M</del> 55'51		min. Earth dist.	731 Jun 14 j 11:05	25° <del>Σ</del> 57'02	18.46719 AU
max. Earth dist.	724 Nov 16 j 11:07	27° <del>M</del> 55'47	20.06273 AU	opposition	731 Jun 15 j 02:37	25° <del>Σ</del> 55'28	0°-15'-19
	724 Dec 21 j 19:05	0° <del>Σ</del>		direct	731 Aug 31 j 02:22	23° <del>Σ</del> 56'03	
retrograde	725 Mar 03 j 12:31	2° <del>Σ</del> 06'18					
opposition	725 May 18 j 13:34	0° <del>Σ</del> 06'33	0°06'23	conjunction	731 Dec 16 j 10:42	28° <del>Σ</del> 00'31	0°-15'-21
min. Earth dist.	725 May 18 j 07:20	0° <del>Σ</del> 07'12	18.09520 AU	minimum elong	731 Dec 16 j 10:42	28° <del>Σ</del> 00'31	0°15'22
	725 May 21 j 05:29	30° <del>R</del> <del>M</del>		behind sun begin	731 Dec 16 j 08:28	28° <del>Σ</del> 00'12	
direct	725 Aug 03 j 20:14	28° <del>M</del> 05'15		behind sun end	731 Dec 16 j 12:55	28° <del>Σ</del> 00'51	
	725 Oct 11 j 18:26	0° <del>Σ</del>		max. Earth dist.	731 Dec 17 j 02:43	28° <del>Σ</del> 02'54	20.49632 AU
					732 Jan 20 j 06:01	0° <del>Σ</del>	
conjunction	725 Nov 20 j 18:41	2° <del>Σ</del> 18'27	0°04'08	retrograde	732 Apr 02 j 12:43	2° <del>Σ</del> 06'32	
minimum elong	725 Nov 20 j 18:42	2° <del>Σ</del> 18'27	0°04'08	opposition	732 Jun 18 j 18:09	0° <del>Σ</del> 07'10	0°-18'-39
behind sun begin	725 Nov 20 j 12:14	2° <del>Σ</del> 17'29		min. Earth dist.	732 Jun 18 j 02:01	0° <del>Σ</del> 08'47	18.52529 AU
behind sun end	725 Nov 21 j 01:09	2° <del>Σ</del> 19'24			732 Jun 21 j 17:06	30° <del>R</del> <del>Σ</del>	
max. Earth dist.	725 Nov 21 j 01:11	2° <del>Σ</del> 19'25	20.12799 AU	direct	732 Sep 03 j 14:56	28° <del>Σ</del> 08'02	
retrograde	726 Mar 08 j 04:02	6° <del>Σ</del> 29'01			732 Nov 10 j 23:50	0° <del>Σ</del>	
opposition	726 May 23 j 09:38	4° <del>Σ</del> 29'23	0°02'40				
min. Earth dist.	726 May 23 j 02:10	4° <del>Σ</del> 30'09	18.16028 AU	conjunction	732 Dec 19 j 18:58	2° <del>Σ</del> 11'13	0°-18'-19
direct	726 Aug 08 j 13:55	2° <del>Σ</del> 28'27		minimum elong	732 Dec 19 j 18:58	2° <del>Σ</del> 11'13	0°18'20
				max. Earth dist.	732 Dec 20 j 12:49	2° <del>Σ</del> 13'52	20.55396 AU

retrograde	733 Apr 07 j 00:54	6°☾16'36		retrograde	741 May 10 j 11:32	8°☾56'39	
opposition	733 Jun 23 j 08:59	4°☾17'18	0°-21'-52	min. Earth dist.	741 Jul 26 j 10:35	7°☾00'12	18.94716 AU
min. Earth dist.	733 Jun 22 j 14:22	4°☾19'10	18.58238 AU	opposition	741 Jul 27 j 10:38	6°☾57'48	0°-41'-50
direct	733 Sep 08 j 05:14	2°☾18'29		direct	741 Oct 11 j 13:44	5°☾01'06	
conjunction	733 Dec 24 j 02:30	6°☾20'27	0°-21'-9	conjunction	742 Jan 25 j 03:43	8°☾55'49	0°-38'-36
minimum elong	733 Dec 24 j 02:29	6°☾20'27	0°21'10	minimum elong	742 Jan 25 j 03:43	8°☾55'49	0°38'37
max. Earth dist.	733 Dec 24 j 21:35	6°☾23'16	20.61039 AU	max. Earth dist.	742 Jan 26 j 04:15	8°☾59'21	20.96064 AU
retrograde	734 Apr 11 j 11:54	10°☾25'16		retrograde	742 May 14 j 18:23	12°☾57'43	
opposition	734 Jun 27 j 23:20	8°☾26'02	0°-24'-56	opposition	742 Jul 31 j 20:35	10°☾58'49	0°-43'-28
min. Earth dist.	734 Jun 27 j 04:21	8°☾27'56	18.63823 AU	min. Earth dist.	742 Jul 30 j 21:34	11°☾01'06	18.97376 AU
direct	734 Sep 12 j 16:20	6°☾27'33		direct	742 Oct 15 j 20:35	9°☾02'12	
conjunction	734 Dec 28 j 09:45	10°☾28'22	0°-23'-52	conjunction	743 Jan 29 j 09:00	12°☾56'17	0°-39'-59
minimum elong	734 Dec 28 j 09:45	10°☾28'22	0°23'53	minimum elong	743 Jan 29 j 09:00	12°☾56'17	0°40'00
max. Earth dist.	734 Dec 29 j 06:18	10°☾31'24	20.66542 AU	max. Earth dist.	743 Jan 30 j 09:33	12°☾59'50	20.98499 AU
retrograde	735 Apr 15 j 23:39	14°☾32'39			743 Mar 07 j 20:09	15°☾	
opposition	735 Jul 02 j 12:41	12°☾33'31	0°-27'-52	retrograde	743 May 19 j 03:55	16°☾57'59	
min. Earth dist.	735 Jul 01 j 15:33	12°☾35'38	18.69228 AU	min. Earth dist.	743 Aug 04 j 05:43	15°☾01'23	18.99588 AU
direct	735 Sep 17 j 04:32	10°☾35'22			743 Aug 04 j 19:34	15°☾	
conjunction	736 Jan 01 j 16:30	14°☾35'06	0°-26'-27	opposition	743 Aug 05 j 05:41	14°☾58'59	0°-44'-52
minimum elong	736 Jan 01 j 16:30	14°☾35'06	0°26'28	direct	743 Oct 20 j 04:36	13°☾02'26	
max. Earth dist.	736 Jan 02 j 14:01	14°☾38'16	20.71829 AU		743 Dec 29 j 13:53	15°☾	
retrograde	736 Apr 19 j 09:34	18°☾38'56		conjunction	744 Feb 02 j 14:04	16°☾56'00	0°-41'-10
min. Earth dist.	736 Jul 05 j 04:43	16°☾42'00	18.74400 AU	minimum elong	744 Feb 02 j 14:04	16°☾56'00	0°41'11
opposition	736 Jul 06 j 01:45	16°☾39'53	0°-30'-39	max. Earth dist.	744 Feb 03 j 14:52	16°☾59'34	21.00492 AU
direct	736 Sep 20 j 14:45	14°☾42'04		retrograde	744 May 22 j 10:32	20°☾57'32	
conjunction	737 Jan 04 j 22:52	18°☾40'47	0°-28'-54	opposition	744 Aug 08 j 14:39	18°☾58'27	0°-46'-4
minimum elong	737 Jan 04 j 22:52	18°☾40'47	0°28'55	min. Earth dist.	744 Aug 07 j 15:36	19°☾00'45	19.01390 AU
max. Earth dist.	737 Jan 05 j 21:29	18°☾44'06	20.76863 AU	direct	744 Oct 23 j 10:31	17°☾01'57	
retrograde	737 Apr 23 j 21:17	22°☾44'12		conjunction	745 Feb 05 j 18:58	20°☾55'02	0°-42'-8
opposition	737 Jul 10 j 14:10	20°☾45'15	0°-33'-15	minimum elong	745 Feb 05 j 18:58	20°☾55'02	0°42'10
min. Earth dist.	737 Jul 09 j 15:15	20°☾47'32	18.79279 AU	max. Earth dist.	745 Feb 06 j 19:50	20°☾58'37	21.02113 AU
direct	737 Sep 25 j 01:34	18°☾47'43		retrograde	745 May 26 j 19:35	24°☾56'30	
conjunction	738 Jan 09 j 05:02	22°☾45'31	0°-31'-11	opposition	745 Aug 12 j 23:05	22°☾57'19	0°-47'-1
minimum elong	738 Jan 09 j 05:02	22°☾45'31	0°31'12	min. Earth dist.	745 Aug 11 j 23:01	22°☾59'44	19.02831 AU
max. Earth dist.	738 Jan 10 j 04:21	22°☾48'55	20.81564 AU	direct	745 Oct 27 j 17:26	21°☾00'51	
retrograde	738 Apr 28 j 06:02	26°☾48'34		conjunction	746 Feb 10 j 00:00	24°☾53'36	0°-42'-55
min. Earth dist.	738 Jul 14 j 03:44	24°☾51'55	18.83811 AU	minimum elong	746 Feb 10 j 00:00	24°☾53'36	0°42'55
opposition	738 Jul 15 j 02:07	24°☾49'41	0°-35'-42	max. Earth dist.	746 Feb 11 j 01:05	24°☾57'12	21.03367 AU
direct	738 Sep 29 j 10:43	22°☾52'26		retrograde	746 May 31 j 02:34	28°☾55'02	
conjunction	739 Jan 13 j 11:00	26°☾49'21	0°-33'-18	min. Earth dist.	746 Aug 16 j 08:06	26°☾58'05	19.03919 AU
minimum elong	739 Jan 13 j 11:00	26°☾49'21	0°33'19	opposition	746 Aug 17 j 07:09	26°☾55'47	0°-47'-45
max. Earth dist.	739 Jan 14 j 10:52	26°☾52'50	20.85896 AU	direct	746 Oct 31 j 22:18	24°☾59'20	
retrograde	739 Mar 17 j 02:28	0°☾		conjunction	747 Feb 14 j 05:10	28°☾51'51	0°-43'-29
	739 May 02 j 17:25	0°☾52'04		minimum elong	747 Feb 14 j 05:10	28°☾51'51	0°43'30
	739 Jun 19 j 22:51	30°☾		max. Earth dist.	747 Feb 15 j 06:00	28°☾55'24	21.04290 AU
opposition	739 Jul 19 j 13:24	28°☾53'14	0°-37'-56		747 Mar 06 j 06:54	0°☾	
min. Earth dist.	739 Jul 18 j 13:38	28°☾55'36	18.87924 AU	retrograde	747 Jun 04 j 11:38	2°☾53'19	
direct	739 Oct 03 j 20:41	26°☾56'13		opposition	747 Aug 21 j 14:52	0°☾54'00	0°-48'-16
	740 Jan 02 j 14:25	0°☾		min. Earth dist.	747 Aug 20 j 15:03	0°☾56'23	19.04664 AU
conjunction	740 Jan 17 j 16:46	0°☾52'21	0°-35'-15		747 Sep 13 j 21:56	30°☾	
minimum elong	740 Jan 17 j 16:46	0°☾52'21	0°35'17	direct	747 Nov 05 j 04:29	28°☾57'36	
max. Earth dist.	740 Jan 18 j 16:56	0°☾55'52	20.89765 AU		747 Dec 25 j 06:00	0°☾	
retrograde	740 May 06 j 01:00	4°☾54'46		conjunction	748 Feb 18 j 10:21	2°☾49'57	0°-43'-50
min. Earth dist.	740 Jul 22 j 01:24	2°☾58'14	18.91564 AU	minimum elong	748 Feb 18 j 10:21	2°☾49'57	0°43'51
opposition	740 Jul 23 j 00:17	2°☾55'57	0°-39'-59	max. Earth dist.	748 Feb 19 j 11:11	2°☾53'30	21.04847 AU
direct	740 Oct 07 j 04:30	0°☾59'07		retrograde	748 Jun 07 j 18:51	6°☾51'32	
conjunction	741 Jan 20 j 22:23	4°☾54'30	0°-37'-1	opposition	748 Aug 24 j 22:30	4°☾52'11	0°-48'-33
minimum elong	741 Jan 20 j 22:23	4°☾54'30	0°37'02	min. Earth dist.	748 Aug 23 j 23:51	4°☾54'27	19.05043 AU
max. Earth dist.	741 Jan 21 j 22:42	4°☾58'02	20.93167 AU	direct	748 Nov 08 j 08:41	2°☾55'49	

conjunction	749 Feb 21 j 15:52	6° <del>✕</del> 48'07	0°-43'-59	conjunction	757 Mar 26 j 02:40	8° <del>Υ</del> 49'47	0°-37'-40
minimum elong	749 Feb 21 j 15:52	6° <del>✕</del> 48'07	0°44'01	minimum elong	757 Mar 26 j 02:40	8° <del>Υ</del> 49'47	0°37'42
max. Earth dist.	749 Feb 22 j 16:13	6° <del>✕</del> 51'36	21.05057 AU	max. Earth dist.	757 Mar 26 j 18:04	8° <del>Υ</del> 51'59	20.90004 AU
retrograde	749 Jun 12 j 04:28	10° <del>✕</del> 49'52		retrograde	757 Jul 15 j 07:52	12° <del>Υ</del> 54'35	
min. Earth dist.	749 Aug 28 j 06:47	8° <del>✕</del> 52'48	19.05059 AU	opposition	757 Sep 30 j 15:18	10° <del>Υ</del> 54'25	0°-40'-43
opposition	749 Aug 29 j 05:51	8° <del>✕</del> 50'29	0°-48'-36	min. Earth dist.	757 Sep 30 j 01:36	10° <del>Υ</del> 55'49	18.88083 AU
direct	749 Nov 12 j 14:30	6° <del>✕</del> 54'09		direct	757 Dec 14 j 08:47	8° <del>Υ</del> 57'09	
conjunction	750 Feb 25 j 21:40	10° <del>✕</del> 46'30	0°-43'-56	conjunction	758 Mar 30 j 12:14	12° <del>Υ</del> 52'53	0°-35'-58
minimum elong	750 Feb 25 j 21:40	10° <del>✕</del> 46'30	0°43'57	minimum elong	758 Mar 30 j 12:14	12° <del>Υ</del> 52'53	0°35'59
max. Earth dist.	750 Feb 26 j 21:46	10° <del>✕</del> 49'56	21.04866 AU	max. Earth dist.	758 Mar 31 j 02:41	12° <del>Υ</del> 54'57	20.86043 AU
retrograde	750 Jun 16 j 12:04	14° <del>✕</del> 48'29		retrograde	758 Jul 19 j 17:03	16° <del>Υ</del> 58'12	
opposition	750 Sep 02 j 13:12	12° <del>✕</del> 49'04	0°-48'-25	opposition	758 Oct 04 j 22:39	14° <del>Υ</del> 57'52	0°-38'-44
min. Earth dist.	750 Sep 01 j 15:40	12° <del>✕</del> 51'15	19.04658 AU	min. Earth dist.	758 Oct 04 j 10:46	14° <del>Υ</del> 59'05	18.83955 AU
direct	750 Nov 16 j 18:31	10° <del>✕</del> 52'46		direct	758 Dec 18 j 14:27	13° <del>Υ</del> 00'22	
conjunction	751 Mar 02 j 03:55	14° <del>✕</del> 45'15	0°-43'-40	conjunction	759 Apr 03 j 22:19	16° <del>Υ</del> 56'51	0°-34'-5
minimum elong	751 Mar 02 j 03:55	14° <del>✕</del> 45'15	0°43'41	minimum elong	759 Apr 03 j 22:19	16° <del>Υ</del> 56'51	0°34'06
max. Earth dist.	751 Mar 03 j 03:03	14° <del>✕</del> 48'34	21.04257 AU	max. Earth dist.	759 Apr 04 j 10:51	16° <del>Υ</del> 58'39	20.81776 AU
retrograde	751 Jun 20 j 22:07	18° <del>✕</del> 47'32		retrograde	759 Jul 24 j 05:20	21° <del>Υ</del> 02'46	
opposition	751 Sep 06 j 20:13	16° <del>✕</del> 48'05	0°-48'00	opposition	759 Oct 09 j 06:03	19° <del>Υ</del> 02'15	0°-36'-33
min. Earth dist.	751 Sep 05 j 22:50	16° <del>✕</del> 50'15	19.03814 AU	min. Earth dist.	759 Oct 08 j 18:56	19° <del>Υ</del> 03'24	18.79545 AU
direct	751 Nov 21 j 00:10	14° <del>✕</del> 51'46		direct	759 Dec 22 j 21:39	17° <del>Υ</del> 04'29	
conjunction	752 Mar 05 j 10:34	18° <del>✕</del> 44'31	0°-43'-12	conjunction	760 Apr 07 j 09:04	21° <del>Υ</del> 01'50	0°-32'-1
minimum elong	752 Mar 05 j 10:34	18° <del>✕</del> 44'31	0°43'13	minimum elong	760 Apr 07 j 09:04	21° <del>Υ</del> 01'50	0°32'01
max. Earth dist.	752 Mar 06 j 09:01	18° <del>✕</del> 47'43	21.03165 AU	max. Earth dist.	760 Apr 07 j 20:46	21° <del>Υ</del> 03'31	20.77232 AU
retrograde	752 Jun 24 j 06:09	22° <del>✕</del> 47'08		retrograde	760 Jul 27 j 15:18	25° <del>Υ</del> 08'22	
min. Earth dist.	752 Sep 09 j 07:56	20° <del>✕</del> 49'37	19.02472 AU	opposition	760 Oct 12 j 13:49	23° <del>Υ</del> 07'43	0°-34'-11
opposition	752 Sep 10 j 03:29	20° <del>✕</del> 47'39	0°-47'-22	min. Earth dist.	760 Oct 12 j 04:24	23° <del>Υ</del> 08'41	18.74880 AU
direct	752 Nov 24 j 04:31	18° <del>✕</del> 51'18		direct	760 Dec 26 j 03:19	21° <del>Υ</del> 09'41	
conjunction	753 Mar 09 j 17:35	22° <del>✕</del> 44'21	0°-42'-30	conjunction	761 Apr 11 j 20:24	25° <del>Υ</del> 07'58	0°-29'-47
minimum elong	753 Mar 09 j 17:35	22° <del>✕</del> 44'21	0°42'31	minimum elong	761 Apr 11 j 20:24	25° <del>Υ</del> 07'58	0°29'48
max. Earth dist.	753 Mar 10 j 14:37	22° <del>✕</del> 47'21	21.01573 AU	max. Earth dist.	761 Apr 12 j 06:02	25° <del>Υ</del> 09'21	20.72467 AU
retrograde	753 Jun 28 j 16:35	26° <del>✕</del> 47'21		retrograde	761 Aug 01 j 04:28	29° <del>Υ</del> 15'12	
opposition	753 Sep 14 j 10:39	24° <del>✕</del> 47'47	0°-46'-29	opposition	761 Oct 16 j 21:51	27° <del>Υ</del> 14'24	0°-31'-37
min. Earth dist.	753 Sep 13 j 15:36	24° <del>✕</del> 49'42	19.00606 AU	min. Earth dist.	761 Oct 16 j 13:24	27° <del>Υ</del> 15'17	18.69999 AU
direct	753 Nov 28 j 10:11	22° <del>✕</del> 51'20		direct	761 Dec 30 j 11:47	25° <del>Υ</del> 16'06	
conjunction	754 Mar 14 j 01:15	26° <del>✕</del> 44'47	0°-41'-36	conjunction	762 Apr 16 j 08:43	29° <del>Υ</del> 15'26	0°-27'-23
minimum elong	754 Mar 14 j 01:15	26° <del>✕</del> 44'47	0°41'38	minimum elong	762 Apr 16 j 08:43	29° <del>Υ</del> 15'26	0°27'23
max. Earth dist.	754 Mar 14 j 21:12	26° <del>✕</del> 47'37	20.99428 AU	max. Earth dist.	762 Apr 16 j 17:25	29° <del>Υ</del> 16'41	20.67473 AU
retrograde	754 May 18 j 23:08	0° <del>Υ</del>		retrograde	762 Apr 29 j 06:38	0° <del>⊘</del>	
opposition	754 Jul 03 j 01:05	0° <del>Υ</del> 48'10		opposition	762 Aug 05 j 15:20	3° <del>⊘</del> 23'21	
min. Earth dist.	754 Aug 18 j 05:21	30° <del>⊘</del>		min. Earth dist.	762 Oct 21 j 06:10	1° <del>⊘</del> 22'27	0°-28'-53
direct	754 Sep 18 j 17:47	28° <del>✕</del> 48'30	0°-45'-23	direct	762 Oct 20 j 23:31	1° <del>⊘</del> 23'09	18.64895 AU
conjunction	754 Sep 18 j 00:49	28° <del>✕</del> 50'13	18.98186 AU		762 Nov 26 j 18:15	30° <del>⊘</del>	
retrograde	754 Dec 02 j 15:13	26° <del>✕</del> 51'55			763 Jan 03 j 18:30	29° <del>Υ</del> 23'54	
opposition	755 Mar 04 j 23:17	0° <del>Υ</del>			763 Feb 10 j 06:05	0° <del>⊘</del>	
min. Earth dist.							
direct							
conjunction	755 Mar 18 j 09:20	0° <del>Υ</del> 45'49	0°-40'-30	conjunction	763 Apr 20 j 21:41	3° <del>⊘</del> 24'20	0°-24'-49
minimum elong	755 Mar 18 j 09:20	0° <del>Υ</del> 45'49	0°40'30	minimum elong	763 Apr 20 j 21:41	3° <del>⊘</del> 24'20	0°24'51
max. Earth dist.	755 Mar 19 j 03:28	0° <del>Υ</del> 48'24	20.96760 AU	max. Earth dist.	763 Apr 21 j 03:59	3° <del>⊘</del> 25'15	20.62281 AU
retrograde	755 Jul 07 j 11:43	4° <del>Υ</del> 49'38		retrograde	763 Aug 10 j 05:09	7° <del>⊘</del> 33'01	
min. Earth dist.	755 Sep 22 j 08:37	2° <del>Υ</del> 51'28	18.95258 AU	opposition	763 Oct 25 j 14:58	5° <del>⊘</del> 32'01	0°-25'-58
opposition	755 Sep 23 j 00:54	2° <del>Υ</del> 49'49	0°-44'-3	min. Earth dist.	763 Oct 25 j 09:35	5° <del>⊘</del> 32'35	18.59593 AU
direct	755 Dec 06 j 20:57	0° <del>Υ</del> 53'02		direct	764 Jan 08 j 03:41	3° <del>⊘</del> 33'12	
conjunction	756 Mar 21 j 17:41	4° <del>Υ</del> 47'28	0°-39'-11	conjunction	764 Apr 24 j 11:28	7° <del>⊘</del> 34'50	0°-22'-7
minimum elong	756 Mar 21 j 17:41	4° <del>Υ</del> 47'28	0°39'13	minimum elong	764 Apr 24 j 11:28	7° <del>⊘</del> 34'50	0°22'09
max. Earth dist.	756 Mar 22 j 10:51	4° <del>Υ</del> 49'55	20.93589 AU	max. Earth dist.	764 Apr 24 j 16:50	7° <del>⊘</del> 35'37	20.56863 AU
retrograde	756 Jul 10 j 20:26	8° <del>Υ</del> 51'45		retrograde	764 Aug 13 j 17:35	11° <del>⊘</del> 44'18	
opposition	756 Sep 26 j 08:10	6° <del>Υ</del> 51'46	0°-42'-29	opposition	764 Oct 29 j 00:17	9° <del>⊘</del> 43'14	0°-22'-55
min. Earth dist.	756 Sep 25 j 17:46	6° <del>Υ</del> 53'14	18.91861 AU	min. Earth dist.	764 Oct 28 j 20:48	9° <del>⊘</del> 43'36	18.54053 AU
direct	756 Dec 10 j 02:34	4° <del>Υ</del> 54'46		direct	765 Jan 11 j 12:19	7° <del>⊘</del> 44'09	

conjunction	765 Apr 29 j 02:15	11°♄47'02	0°-19'-17	asc. node	771 Jun 12 j 11:48	8°♂35'24	
minimum elong	765 Apr 29 j 02:14	11°♄47'02	0°19'18	retrograde	771 Sep 14 j 04:55	11°♂50'32	
max. Earth dist.	765 Apr 29 j 04:43	11°♄47'23	20.51213 AU	opposition	771 Nov 28 j 07:48	9°♂48'30	0°01'42
	765 Jun 30 j 20:09	15°♄		min. Earth dist.	771 Nov 28 j 16:55	9°♂47'32	18.09190 AU
retrograde	765 Aug 18 j 07:53	15°♄57'18		direct	772 Feb 11 j 01:12	7°♂46'38	
	765 Oct 06 j 16:09	15°♄					
opposition	765 Nov 02 j 09:58	13°♄56'08	0°-19'-42	conjunction	772 May 30 j 09:34	11°♂59'23	0°03'17
min. Earth dist.	765 Nov 02 j 08:13	13°♄56'19	18.48275 AU	minimum elong	772 May 30 j 09:34	11°♂59'23	0°03'18
direct	766 Jan 15 j 22:15	11°♄56'44		behind sun begin	772 May 30 j 02:49	11°♂58'24	
	766 Apr 16 j 04:45	15°♄		behind sun end	772 May 30 j 16:18	12°♂00'22	
				max. Earth dist.	772 May 29 j 22:23	11°♂57'44	20.05860 AU
conjunction	766 May 03 j 18:07	16°♄00'56	0°-16'-19	retrograde	772 Sep 17 j 22:53	16°♂15'11	
minimum elong	766 May 03 j 18:07	16°♄00'57	0°16'21	opposition	772 Dec 01 j 21:23	14°♂13'01	0°05'27
max. Earth dist.	766 May 03 j 19:18	16°♄01'07	20.45291 AU	min. Earth dist.	772 Dec 02 j 07:26	14°♂11'56	18.02524 AU
retrograde	766 Aug 22 j 22:08	20°♄12'00		direct	773 Feb 14 j 16:38	12°♂10'43	
opposition	766 Nov 06 j 20:20	18°♄10'44	0°-16'-21				
min. Earth dist.	766 Nov 06 j 20:33	18°♄10'43	18.42212 AU	conjunction	773 Jun 04 j 06:50	16°♂24'58	0°06'38
direct	767 Jan 20 j 08:55	16°♄11'00		minimum elong	773 Jun 04 j 06:49	16°♂24'57	0°06'38
				behind sun begin	773 Jun 04 j 00:29	16°♂24'02	
conjunction	767 May 08 j 10:35	20°♄16'33	0°-13'-15	behind sun end	773 Jun 04 j 13:09	16°♂25'53	
minimum elong	767 May 08 j 10:35	20°♄16'33	0°13'15	max. Earth dist.	773 Jun 03 j 16:47	16°♂22'52	19.99260 AU
behind sun begin	767 May 08 j 06:47	20°♄16'01		retrograde	773 Sep 22 j 16:34	20°♂41'31	
behind sun end	767 May 08 j 14:22	20°♄17'06		opposition	773 Dec 06 j 11:34	18°♂39'14	0°09'10
max. Earth dist.	767 May 08 j 08:27	20°♄16'15	20.39102 AU	min. Earth dist.	773 Dec 06 j 23:33	18°♂37'57	17.96017 AU
retrograde	767 Aug 27 j 12:51	24°♄28'26		direct	774 Feb 19 j 07:41	16°♂36'31	
opposition	767 Nov 11 j 07:11	22°♄27'02	0°-12'-54				
min. Earth dist.	767 Nov 11 j 09:18	22°♄26'48	18.35898 AU	conjunction	774 Jun 09 j 05:02	20°♂52'18	0°09'58
direct	768 Jan 24 j 20:11	20°♄26'54		minimum elong	774 Jun 09 j 05:01	20°♂52'17	0°09'58
				behind sun begin	774 Jun 08 j 23:35	20°♂51'30	
conjunction	768 May 12 j 04:05	24°♄33'50	0°-10'-5	behind sun end	774 Jun 09 j 10:27	20°♂53'05	
minimum elong	768 May 12 j 04:05	24°♄33'50	0°10'07	max. Earth dist.	774 Jun 08 j 14:33	20°♂50'08	19.92844 AU
behind sun begin	768 May 11 j 22:43	24°♄33'04		retrograde	774 Sep 27 j 12:28	25°♂09'36	
behind sun end	768 May 12 j 09:27	24°♄34'36		opposition	774 Dec 11 j 02:30	23°♂07'14	0°12'52
max. Earth dist.	768 May 12 j 00:46	24°♄33'22	20.32670 AU	min. Earth dist.	774 Dec 11 j 15:01	23°♂05'53	17.89711 AU
retrograde	768 Aug 31 j 04:20	28°♄46'30		direct	775 Feb 24 j 00:40	21°♂04'09	
opposition	768 Nov 14 j 18:31	26°♄44'57	0°-9'-20	max. Earth dist.	775 Jun 13 j 10:43	25°♂18'53	19.86659 AU
min. Earth dist.	768 Nov 14 j 22:22	26°♄44'33	18.29361 AU				
direct	769 Jan 28 j 08:33	24°♄44'25		conjunction	775 Jun 14 j 03:37	25°♂21'25	0°13'15
				minimum elong	775 Jun 14 j 03:36	25°♂21'25	0°13'15
conjunction	769 May 16 j 22:14	28°♄52'46	0°-6'-51	behind sun begin	775 Jun 13 j 23:49	25°♂20'52	
minimum elong	769 May 16 j 22:15	28°♄52'46	0°06'52	behind sun end	775 Jun 14 j 07:24	25°♂21'59	
behind sun begin	769 May 16 j 15:58	28°♄51'52		retrograde	775 Oct 02 j 07:16	29°♂39'30	
behind sun end	769 May 17 j 04:31	28°♄53'40		opposition	775 Dec 15 j 18:15	27°♂37'04	0°16'30
max. Earth dist.	769 May 16 j 15:37	28°♄51'49	20.26060 AU	min. Earth dist.	775 Dec 16 j 08:36	27°♂35'31	17.83671 AU
	769 Jun 05 j 03:18	0°♂		direct	776 Feb 28 j 16:26	25°♂33'38	
retrograde	769 Sep 04 j 19:54	3°♂06'13		max. Earth dist.	776 Jun 17 j 09:55	29°♂49'49	19.80756 AU
opposition	769 Nov 19 j 06:26	1°♂04'30	0°-5'-42				
min. Earth dist.	769 Nov 19 j 12:17	1°♂03'53	18.22686 AU	conjunction	776 Jun 18 j 03:15	29°♂52'26	0°16'29
	769 Dec 15 j 21:51	30°♄		minimum elong	776 Jun 18 j 03:14	29°♂52'26	0°16'28
direct	770 Feb 01 j 21:17	29°♄03'32			776 Jun 20 j 05:16	0°♂	
	770 Mar 20 j 21:11	0°♂		retrograde	776 Oct 06 j 05:13	4°♂11'13	
				opposition	776 Dec 19 j 10:29	2°♂08'47	0°20'04
conjunction	770 May 21 j 17:23	3°♂13'19	0°-3'-33	min. Earth dist.	776 Dec 20 j 01:14	2°♂07'11	17.77906 AU
minimum elong	770 May 21 j 17:23	3°♂13'19	0°03'34	direct	777 Mar 04 j 11:18	0°♂05'02	
behind sun begin	770 May 21 j 10:40	3°♂12'21		max. Earth dist.	777 Jun 22 j 08:04	4°♂22'22	19.75127 AU
behind sun end	770 May 22 j 00:06	3°♂14'17					
max. Earth dist.	770 May 21 j 09:49	3°♂12'14	20.19330 AU	conjunction	777 Jun 23 j 03:34	4°♂25'20	0°19'38
retrograde	770 Sep 09 j 12:24	7°♂27'33		minimum elong	777 Jun 23 j 03:34	4°♂25'20	0°19'39
opposition	770 Nov 23 j 18:45	5°♂25'41	0°-2'00	retrograde	777 Oct 11 j 00:45	8°♂44'49	
min. Earth dist.	770 Nov 24 j 01:59	5°♂24'54	18.15926 AU	opposition	777 Dec 24 j 03:42	6°♂42'24	0°23'32
direct	771 Feb 06 j 11:15	3°♂24'16		min. Earth dist.	777 Dec 24 j 20:33	6°♂40'34	17.72423 AU
				direct	778 Mar 09 j 04:23	4°♂38'21	
conjunction	771 May 26 j 13:04	7°♂35'31	0°00'-9	max. Earth dist.	778 Jun 27 j 08:24	8°♂57'02	19.69771 AU
minimum elong	771 May 26 j 13:04	7°♂35'31	0°00'10				
behind sun begin	771 May 26 j 06:22	7°♂34'33		conjunction	778 Jun 28 j 04:38	9°♂00'07	0°22'42
behind sun end	771 May 26 j 19:47	7°♂36'29		minimum elong	778 Jun 28 j 04:37	9°♂00'07	0°22'42
max. Earth dist.	771 May 26 j 02:26	7°♂33'57	20.12571 AU	retrograde	778 Oct 15 j 23:46	13°♂20'15	



opposition	778 Dec 28 j 21:32	11° $\mathring{U}$ 17'51	0°26'53	conjunction	786 Aug 06 j 04:28	16° $\mathring{Q}$ 28'03	0°40'47
min. Earth dist.	778 Dec 29 j 14:41	11° $\mathring{U}$ 15'59	17.67193 AU	minimum elong	786 Aug 06 j 04:28	16° $\mathring{Q}$ 28'03	0°40'47
direct	779 Mar 14 j 01:27	9° $\mathring{U}$ 13'32		retrograde	786 Nov 22 j 11:40	20° $\mathring{Q}$ 50'57	
max. Earth dist.	779 Jul 02 j 08:16	13° $\mathring{U}$ 33'19	19.64656 AU	opposition	787 Feb 03 j 21:15	18° $\mathring{Q}$ 48'24	0°46'09
				min. Earth dist.	787 Feb 04 j 19:47	18° $\mathring{Q}$ 45'56	17.36587 AU
conjunction	779 Jul 03 j 06:19	13° $\mathring{U}$ 36'41	0°25'38	direct	787 Apr 20 j 23:11	16° $\mathring{Q}$ 42'00	
minimum elong	779 Jul 03 j 06:19	13° $\mathring{U}$ 36'41	0°25'38	max. Earth dist.	787 Aug 10 j 06:11	21° $\mathring{Q}$ 08'41	19.35605 AU
retrograde	779 Oct 20 j 19:51	17° $\mathring{U}$ 57'25					
opposition	780 Jan 02 j 16:19	15° $\mathring{U}$ 55'01	0°30'05	conjunction	787 Aug 11 j 08:03	21° $\mathring{Q}$ 12'43	0°41'57
min. Earth dist.	780 Jan 03 j 11:36	15° $\mathring{U}$ 52'55	17.62217 AU	minimum elong	787 Aug 11 j 08:03	21° $\mathring{Q}$ 12'43	0°41'58
direct	780 Mar 17 j 20:44	13° $\mathring{U}$ 50'25		retrograde	787 Nov 27 j 10:55	25° $\mathring{Q}$ 35'39	
max. Earth dist.	780 Jul 06 j 09:23	18° $\mathring{U}$ 11'19	19.59801 AU	opposition	788 Feb 08 j 20:36	23° $\mathring{Q}$ 33'08	0°47'18
				min. Earth dist.	788 Feb 09 j 19:18	23° $\mathring{Q}$ 30'40	17.34878 AU
conjunction	780 Jul 07 j 08:33	18° $\mathring{U}$ 14'52	0°28'25	direct	788 Apr 25 j 00:15	21° $\mathring{Q}$ 26'39	
minimum elong	780 Jul 07 j 08:32	18° $\mathring{U}$ 14'52	0°28'25	max. Earth dist.	788 Aug 14 j 08:52	25° $\mathring{Q}$ 53'38	19.34215 AU
retrograde	780 Oct 24 j 19:17	22° $\mathring{U}$ 36'08					
opposition	781 Jan 06 j 11:43	20° $\mathring{U}$ 33'43	0°33'06	conjunction	788 Aug 15 j 11:23	25° $\mathring{Q}$ 57'47	0°42'51
min. Earth dist.	781 Jan 07 j 07:07	20° $\mathring{U}$ 31'36	17.57483 AU	minimum elong	788 Aug 15 j 11:23	25° $\mathring{Q}$ 57'47	0°42'50
direct	781 Mar 22 j 20:15	18° $\mathring{U}$ 28'50			788 Nov 04 j 07:05	0° $\mathring{M}$	
max. Earth dist.	781 Jul 11 j 10:59	22° $\mathring{U}$ 50'46	19.55185 AU	retrograde	788 Dec 01 j 11:14	0° $\mathring{M}$ 20'43	
					788 Dec 29 j 00:11	30° $\mathring{R}$ $\mathring{Q}$	
conjunction	781 Jul 12 j 11:23	22° $\mathring{U}$ 54'31	0°31'02	opposition	789 Feb 12 j 20:26	28° $\mathring{Q}$ 18'16	0°48'09
minimum elong	781 Jul 12 j 11:23	22° $\mathring{U}$ 54'31	0°31'01	min. Earth dist.	789 Feb 13 j 18:20	28° $\mathring{Q}$ 15'53	17.33811 AU
retrograde	781 Oct 29 j 15:45	27° $\mathring{U}$ 16'13		direct	789 Apr 30 j 02:48	26° $\mathring{Q}$ 11'43	
opposition	782 Jan 11 j 07:53	25° $\mathring{U}$ 13'48	0°35'55		789 Aug 09 j 02:30	0° $\mathring{M}$	
min. Earth dist.	782 Jan 12 j 05:17	25° $\mathring{U}$ 11'27	17.53018 AU				
direct	782 Mar 27 j 17:43	23° $\mathring{U}$ 08'37		conjunction	789 Aug 20 j 14:44	0° $\mathring{M}$ 43'12	0°43'27
				minimum elong	789 Aug 20 j 14:44	0° $\mathring{M}$ 43'12	0°43'27
conjunction	782 Jul 17 j 14:31	27° $\mathring{U}$ 35'25	0°33'27	max. Earth dist.	789 Aug 19 j 14:06	0° $\mathring{M}$ 39'20	19.33466 AU
minimum elong	782 Jul 17 j 14:30	27° $\mathring{U}$ 35'25	0°33'27	retrograde	789 Dec 06 j 11:14	5° $\mathring{M}$ 06'03	
max. Earth dist.	782 Jul 16 j 12:51	27° $\mathring{U}$ 31'27	19.50875 AU	opposition	790 Feb 17 j 20:42	3° $\mathring{M}$ 03'44	0°48'39
	782 Aug 27 j 16:48	0° $\mathring{Q}$		min. Earth dist.	790 Feb 18 j 18:07	3° $\mathring{M}$ 01'24	17.33372 AU
retrograde	782 Nov 03 j 15:35	1° $\mathring{Q}$ 57'30		direct	790 May 05 j 04:33	0° $\mathring{M}$ 57'14	
	783 Jan 14 j 07:15	30° $\mathring{R}$ $\mathring{U}$					
opposition	783 Jan 16 j 04:38	29° $\mathring{U}$ 55'03	0°38'30	conjunction	790 Aug 25 j 17:43	5° $\mathring{M}$ 28'54	0°43'45
min. Earth dist.	783 Jan 17 j 01:50	29° $\mathring{U}$ 52'43	17.48873 AU	minimum elong	790 Aug 25 j 17:43	5° $\mathring{M}$ 28'54	0°43'45
direct	783 Apr 01 j 19:04	27° $\mathring{U}$ 49'35		max. Earth dist.	790 Aug 24 j 16:52	5° $\mathring{M}$ 25'00	19.33349 AU
	783 Jun 14 j 00:21	0° $\mathring{Q}$		retrograde	790 Dec 11 j 11:31	9° $\mathring{M}$ 51'39	
conjunction	783 Jul 22 j 17:47	2° $\mathring{Q}$ 17'23	0°35'39	opposition	791 Feb 22 j 21:20	7° $\mathring{M}$ 49'28	0°48'50
minimum elong	783 Jul 22 j 17:47	2° $\mathring{Q}$ 17'23	0°35'38	min. Earth dist.	791 Feb 23 j 18:08	7° $\mathring{M}$ 47'12	17.33566 AU
max. Earth dist.	783 Jul 21 j 15:56	2° $\mathring{Q}$ 13'23	19.46898 AU	direct	791 May 10 j 07:18	5° $\mathring{M}$ 43'03	
retrograde	783 Nov 08 j 13:01	6° $\mathring{Q}$ 39'47		conjunction	791 Aug 30 j 20:27	10° $\mathring{M}$ 14'46	0°43'46
opposition	784 Jan 21 j 02:06	4° $\mathring{Q}$ 37'17	0°40'50	minimum elong	791 Aug 30 j 20:27	10° $\mathring{M}$ 14'46	0°43'46
min. Earth dist.	784 Jan 22 j 00:50	4° $\mathring{Q}$ 34'48	17.45096 AU	max. Earth dist.	791 Aug 29 j 21:30	10° $\mathring{M}$ 11'10	19.33834 AU
direct	784 Apr 05 j 18:18	2° $\mathring{Q}$ 31'33		retrograde	791 Dec 16 j 11:33	14° $\mathring{M}$ 37'20	
				opposition	792 Feb 27 j 22:17	12° $\mathring{M}$ 35'19	0°48'41
conjunction	784 Jul 26 j 21:18	7° $\mathring{Q}$ 00'15	0°37'37	min. Earth dist.	792 Feb 28 j 18:09	12° $\mathring{M}$ 33'10	17.34314 AU
minimum elong	784 Jul 26 j 21:18	7° $\mathring{Q}$ 00'15	0°37'37	direct	792 May 14 j 10:11	10° $\mathring{M}$ 29'03	
max. Earth dist.	784 Jul 25 j 18:13	6° $\mathring{Q}$ 56'03	19.43333 AU				
retrograde	784 Nov 12 j 12:58	11° $\mathring{Q}$ 22'53		conjunction	792 Sep 03 j 22:54	15° $\mathring{M}$ 00'41	0°43'28
opposition	785 Jan 24 j 23:48	9° $\mathring{Q}$ 20'21	0°42'54	minimum elong	792 Sep 03 j 22:54	15° $\mathring{M}$ 00'41	0°43'29
min. Earth dist.	785 Jan 25 j 22:10	9° $\mathring{Q}$ 17'55	17.41754 AU	max. Earth dist.	792 Sep 03 j 00:04	14° $\mathring{M}$ 57'05	19.34848 AU
direct	785 Apr 10 j 20:19	7° $\mathring{Q}$ 14'21		retrograde	792 Dec 20 j 10:57	19° $\mathring{M}$ 22'59	
max. Earth dist.	785 Jul 30 j 22:37	11° $\mathring{Q}$ 39'45	19.40216 AU	opposition	793 Mar 03 j 23:26	17° $\mathring{M}$ 21'08	0°48'12
				min. Earth dist.	793 Mar 04 j 19:04	17° $\mathring{M}$ 19'00	17.35588 AU
conjunction	785 Aug 01 j 01:03	11° $\mathring{Q}$ 43'52	0°39'20	direct	793 May 19 j 13:31	15° $\mathring{M}$ 15'00	
minimum elong	785 Aug 01 j 01:03	11° $\mathring{Q}$ 43'52	0°39'20	max. Earth dist.	793 Sep 08 j 03:46	19° $\mathring{M}$ 43'04	19.36365 AU
	785 Sep 28 j 18:16	15° $\mathring{Q}$					
retrograde	785 Nov 17 j 11:32	16° $\mathring{Q}$ 06'39		conjunction	793 Sep 09 j 01:02	19° $\mathring{M}$ 46'24	0°42'53
	786 Jan 07 j 19:33	15° $\mathring{R}$ $\mathring{Q}$		minimum elong	793 Sep 09 j 01:02	19° $\mathring{M}$ 46'24	0°42'52
opposition	786 Jan 29 j 22:20	14° $\mathring{Q}$ 04'06	0°44'41	retrograde	793 Dec 25 j 10:37	24° $\mathring{M}$ 08'22	
min. Earth dist.	786 Jan 30 j 21:37	14° $\mathring{Q}$ 01'34	17.38892 AU	opposition	794 Mar 09 j 00:55	22° $\mathring{M}$ 06'40	0°47'22
direct	786 Apr 15 j 20:45	11° $\mathring{Q}$ 57'53		min. Earth dist.	794 Mar 09 j 19:05	22° $\mathring{M}$ 04'42	17.37324 AU
	786 Jul 13 j 06:29	15° $\mathring{Q}$		direct	794 May 24 j 18:00	20° $\mathring{M}$ 00'44	
max. Earth dist.	786 Aug 05 j 01:07	16° $\mathring{Q}$ 23'47	19.37623 AU	max. Earth dist.	794 Sep 13 j 05:58	24° $\mathring{M}$ 28'29	19.38325 AU

conjunction	794 Sep 14 j 02:27	24° $\mathring{M}$ 31'43	0°42'00		802 Sep 19 j 20:38	0° $\mathring{M}$	
minimum elong	794 Sep 14 j 02:27	24° $\mathring{M}$ 31'43	0°42'01				
retrograde	794 Dec 30 j 08:52	28° $\mathring{M}$ 53'17		conjunction	802 Oct 21 j 11:51	1° $\mathring{M}$ 54'19	0°25'52
opposition	795 Mar 14 j 02:34	26° $\mathring{M}$ 51'42	0°46'14	minimum elong	802 Oct 21 j 11:51	1° $\mathring{M}$ 54'19	0°25'52
min. Earth dist.	795 Mar 14 j 20:32	26° $\mathring{M}$ 49'46	17.39506 AU	max. Earth dist.	802 Oct 21 j 05:50	1° $\mathring{M}$ 53'24	19.68895 AU
direct	795 May 29 j 21:31	24° $\mathring{M}$ 45'56		retrograde	803 Feb 05 j 10:39	6° $\mathring{M}$ 10'27	
max. Earth dist.	795 Sep 18 j 08:15	29° $\mathring{M}$ 13'22	19.40721 AU	opposition	803 Apr 21 j 08:59	4° $\mathring{M}$ 09'41	0°27'12
				min. Earth dist.	803 Apr 21 j 14:15	4° $\mathring{M}$ 09'08	17.71690 AU
conjunction	795 Sep 19 j 03:26	29° $\mathring{M}$ 16'23	0°40'50	direct	803 Jul 07 j 14:38	2° $\mathring{M}$ 05'51	
minimum elong	795 Sep 19 j 03:26	29° $\mathring{M}$ 16'23	0°40'50				
	795 Sep 30 j 17:21	0° $\mathring{M}$		conjunction	803 Oct 26 j 06:05	6° $\mathring{M}$ 27'46	0°22'59
retrograde	796 Jan 04 j 08:07	3° $\mathring{M}$ 37'27		minimum elong	803 Oct 26 j 06:05	6° $\mathring{M}$ 27'46	0°22'58
opposition	796 Mar 18 j 03:57	1° $\mathring{M}$ 36'00	0°44'46	max. Earth dist.	803 Oct 26 j 01:07	6° $\mathring{M}$ 27'00	19.74594 AU
min. Earth dist.	796 Mar 18 j 20:02	1° $\mathring{M}$ 34'16	17.42092 AU	retrograde	804 Feb 10 j 06:22	10° $\mathring{M}$ 43'05	
	796 Apr 29 j 16:17	30° $\mathring{R}$ $\mathring{M}$		opposition	804 Apr 25 j 08:00	8° $\mathring{M}$ 42'30	0°23'54
direct	796 Jun 03 j 02:16	29° $\mathring{M}$ 30'24		min. Earth dist.	804 Apr 25 j 10:36	8° $\mathring{M}$ 42'13	17.77555 AU
	796 Jul 06 j 18:49	0° $\mathring{M}$		direct	804 Jul 11 j 14:56	6° $\mathring{M}$ 39'04	
max. Earth dist.	796 Sep 22 j 09:59	3° $\mathring{M}$ 57'23	19.43508 AU				
conjunction	796 Sep 23 j 03:49	4° $\mathring{M}$ 00'11	0°39'24	conjunction	804 Oct 29 j 23:38	10° $\mathring{M}$ 59'37	0°19'58
minimum elong	796 Sep 23 j 03:49	4° $\mathring{M}$ 00'11	0°39'24	minimum elong	804 Oct 29 j 23:39	10° $\mathring{M}$ 59'37	0°19'59
retrograde	797 Jan 08 j 05:31	8° $\mathring{M}$ 20'41		max. Earth dist.	804 Oct 29 j 21:51	10° $\mathring{M}$ 59'21	19.80610 AU
opposition	797 Mar 23 j 05:33	6° $\mathring{M}$ 19'21	0°43'00		805 Jan 22 j 03:07	15° $\mathring{M}$	
min. Earth dist.	797 Mar 23 j 21:27	6° $\mathring{M}$ 17'39	17.45078 AU	retrograde	805 Feb 14 j 00:16	15° $\mathring{M}$ 14'08	
direct	797 Jun 08 j 04:40	4° $\mathring{M}$ 13'56			805 Mar 09 j 07:03	15° $\mathring{R}$ $\mathring{M}$	
max. Earth dist.	797 Sep 27 j 10:37	8° $\mathring{M}$ 40'16	19.46699 AU	opposition	805 Apr 30 j 06:51	13° $\mathring{M}$ 13'44	0°20'29
				min. Earth dist.	805 Apr 30 j 08:08	13° $\mathring{M}$ 13'36	17.83692 AU
conjunction	797 Sep 28 j 03:17	8° $\mathring{M}$ 42'53	0°37'42	direct	805 Jul 16 j 13:52	11° $\mathring{M}$ 10'45	
minimum elong	797 Sep 28 j 03:17	8° $\mathring{M}$ 42'53	0°37'42		805 Oct 26 j 14:32	15° $\mathring{M}$	
retrograde	798 Jan 13 j 04:42	13° $\mathring{M}$ 02'46		conjunction	805 Nov 03 j 16:04	15° $\mathring{M}$ 29'52	0°16'51
opposition	798 Mar 28 j 06:51	11° $\mathring{M}$ 01'31	0°40'58	minimum elong	805 Nov 03 j 16:04	15° $\mathring{M}$ 29'52	0°16'51
min. Earth dist.	798 Mar 28 j 20:23	11° $\mathring{M}$ 00'04	17.48455 AU	max. Earth dist.	805 Nov 03 j 15:14	15° $\mathring{M}$ 29'44	19.86866 AU
direct	798 Jun 13 j 09:00	8° $\mathring{M}$ 56'18		retrograde	806 Feb 18 j 18:31	19° $\mathring{M}$ 43'36	
max. Earth dist.	798 Oct 02 j 11:36	13° $\mathring{M}$ 22'02	19.50281 AU	opposition	806 May 05 j 05:11	17° $\mathring{M}$ 43'22	0°16'57
				min. Earth dist.	806 May 05 j 04:09	17° $\mathring{M}$ 43'29	17.90044 AU
conjunction	798 Oct 03 j 02:04	13° $\mathring{M}$ 24'18	0°35'45	direct	806 Jul 21 j 12:16	15° $\mathring{M}$ 40'48	
minimum elong	798 Oct 03 j 02:04	13° $\mathring{M}$ 24'18	0°35'44				
retrograde	799 Jan 18 j 01:00	17° $\mathring{M}$ 43'30		conjunction	806 Nov 08 j 08:00	19° $\mathring{M}$ 58'29	0°13'39
opposition	799 Apr 02 j 08:01	15° $\mathring{M}$ 42'19	0°38'39	minimum elong	806 Nov 08 j 07:59	19° $\mathring{M}$ 58'29	0°13'39
min. Earth dist.	799 Apr 02 j 21:04	15° $\mathring{M}$ 40'56	17.52244 AU	behind sun begin	806 Nov 08 j 04:19	19° $\mathring{M}$ 57'56	
direct	799 Jun 18 j 09:49	13° $\mathring{M}$ 37'18		behind sun end	806 Nov 08 j 11:40	19° $\mathring{M}$ 59'03	
				max. Earth dist.	806 Nov 08 j 10:09	19° $\mathring{M}$ 58'49	19.93286 AU
conjunction	799 Oct 07 j 23:47	18° $\mathring{M}$ 04'14	0°33'34	retrograde	807 Feb 23 j 11:47	24° $\mathring{M}$ 11'25	
minimum elong	799 Oct 07 j 23:47	18° $\mathring{M}$ 04'14	0°33'34	opposition	807 May 10 j 02:52	22° $\mathring{M}$ 11'22	0°13'20
max. Earth dist.	799 Oct 07 j 10:27	18° $\mathring{M}$ 02'09	19.54288 AU	min. Earth dist.	807 May 10 j 00:26	22° $\mathring{M}$ 11'37	17.96510 AU
retrograde	800 Jan 22 j 23:33	22° $\mathring{M}$ 22'42		direct	807 Jul 26 j 10:12	20° $\mathring{M}$ 09'14	
opposition	800 Apr 06 j 08:42	20° $\mathring{M}$ 21'35	0°36'06				
min. Earth dist.	800 Apr 06 j 19:03	20° $\mathring{M}$ 20'29	17.56453 AU	conjunction	807 Nov 12 j 22:56	24° $\mathring{M}$ 25'27	0°10'23
direct	800 Jun 22 j 12:59	18° $\mathring{M}$ 16'48		minimum elong	807 Nov 12 j 22:56	24° $\mathring{M}$ 25'27	0°10'23
				behind sun begin	807 Nov 12 j 17:43	24° $\mathring{M}$ 24'40	
conjunction	800 Oct 11 j 20:46	22° $\mathring{M}$ 42'34	0°31'11	behind sun end	807 Nov 13 j 04:09	24° $\mathring{M}$ 26'14	
minimum elong	800 Oct 11 j 20:46	22° $\mathring{M}$ 42'34	0°31'10	max. Earth dist.	807 Nov 13 j 01:45	24° $\mathring{M}$ 25'52	19.99787 AU
max. Earth dist.	800 Oct 11 j 10:18	22° $\mathring{M}$ 40'56	19.58711 AU	retrograde	808 Feb 28 j 04:24	28° $\mathring{M}$ 37'35	
retrograde	801 Jan 26 j 18:54	27° $\mathring{M}$ 00'16		opposition	808 May 14 j 00:04	26° $\mathring{M}$ 37'42	0°09'40
opposition	801 Apr 11 j 09:13	24° $\mathring{M}$ 59'15	0°33'19	min. Earth dist.	808 May 13 j 19:52	26° $\mathring{M}$ 38'08	18.03030 AU
min. Earth dist.	801 Apr 11 j 18:39	24° $\mathring{M}$ 58'15	17.61095 AU	direct	808 Jul 30 j 06:40	24° $\mathring{M}$ 35'58	
direct	801 Jun 27 j 13:04	22° $\mathring{M}$ 54'44					
				conjunction	808 Nov 16 j 13:12	28° $\mathring{M}$ 50'43	0°07'05
conjunction	801 Oct 16 j 16:44	27° $\mathring{M}$ 19'16	0°28'36	minimum elong	808 Nov 16 j 13:12	28° $\mathring{M}$ 50'43	0°07'04
minimum elong	801 Oct 16 j 16:44	27° $\mathring{M}$ 19'16	0°28'36	behind sun begin	808 Nov 16 j 07:08	28° $\mathring{M}$ 49'49	
max. Earth dist.	801 Oct 16 j 07:28	27° $\mathring{M}$ 17'50	19.63588 AU	behind sun end	808 Nov 16 j 19:17	28° $\mathring{M}$ 51'37	
	801 Dec 01 j 20:36	0° $\mathring{M}$		max. Earth dist.	808 Nov 16 j 18:41	28° $\mathring{M}$ 51'32	20.06298 AU
retrograde	802 Jan 31 j 16:05	1° $\mathring{M}$ 36'11			808 Dec 05 j 15:21	0° $\mathring{M}$	
	802 Apr 06 j 12:49	30° $\mathring{R}$ $\mathring{M}$		retrograde	809 Mar 03 j 20:35	3° $\mathring{M}$ 02'02	
opposition	802 Apr 16 j 09:16	29° $\mathring{M}$ 35'16	0°30'21	opposition	809 May 18 j 20:42	1° $\mathring{M}$ 02'18	0°05'58
min. Earth dist.	802 Apr 16 j 15:43	29° $\mathring{M}$ 34'35	17.66189 AU	min. Earth dist.	809 May 18 j 14:53	1° $\mathring{M}$ 02'54	18.09516 AU
direct	802 Jul 02 j 15:08	27° $\mathring{M}$ 31'04			809 Jun 14 j 10:16	30° $\mathring{R}$ $\mathring{M}$	

direct	809 Aug 04 j 03:31	29° <del>1</del> 00'58		behind sun end	815 Dec 16 j 20:13	28° <del>2</del> 56'45	
	809 Sep 21 j 14:52	0° <del>2</del>		max. Earth dist.	815 Dec 17 j 10:18	28° <del>2</del> 58'51	20.49545 AU
					816 Jan 03 j 16:23	0° <del>3</del>	
conjunction	809 Nov 21 j 02:36	3° <del>2</del> 14'14	0°03'45	retrograde	816 Apr 02 j 19:47	3° <del>3</del> 02'33	
minimum elong	809 Nov 21 j 02:35	3° <del>2</del> 14'13	0°03'46	min. Earth dist.	816 Jun 18 j 08:49	1° <del>3</del> 04'54	18.52492 AU
behind sun begin	809 Nov 20 j 20:06	3° <del>2</del> 13'16		opposition	816 Jun 19 j 01:05	1° <del>3</del> 03'15	0°-19'00
behind sun end	809 Nov 21 j 09:04	3° <del>2</del> 15'11			816 Jul 16 j 13:48	30° <del>R</del> <del>2</del>	
max. Earth dist.	809 Nov 21 j 08:40	3° <del>2</del> 15'07	20.12756 AU	direct	816 Sep 03 j 21:35	29° <del>2</del> 04'11	
retrograde	810 Mar 08 j 11:48	7° <del>2</del> 24'46			816 Oct 21 j 05:24	0° <del>3</del>	
opposition	810 May 23 j 16:43	5° <del>2</del> 25'08	0°02'14				
min. Earth dist.	810 May 23 j 09:30	5° <del>2</del> 25'52	18.15945 AU	conjunction	816 Dec 20 j 02:40	3° <del>3</del> 07'30	0°-18'-38
direct	810 Aug 08 j 22:02	3° <del>2</del> 24'09		minimum elong	816 Dec 20 j 02:40	3° <del>3</del> 07'30	0°18'38
				max. Earth dist.	816 Dec 20 j 20:36	3° <del>3</del> 10'10	20.55406 AU
conjunction	810 Nov 25 j 15:14	7° <del>2</del> 35'55	0°00'21	retrograde	817 Apr 07 j 09:00	7° <del>3</del> 12'56	
minimum elong	810 Nov 25 j 15:15	7° <del>2</del> 35'55	0°00'21	opposition	817 Jun 23 j 15:58	5° <del>3</del> 13'43	0°-22'-12
behind sun begin	810 Nov 25 j 08:43	7° <del>2</del> 34'58		min. Earth dist.	817 Jun 22 j 21:24	5° <del>3</del> 15'36	18.58288 AU
behind sun end	810 Nov 25 j 21:46	7° <del>2</del> 36'53		direct	817 Sep 08 j 11:52	3° <del>3</del> 14'59	
max. Earth dist.	810 Nov 25 j 23:43	7° <del>2</del> 37'11	20.19131 AU				
desc. node	811 Jan 02 j 00:50	9° <del>2</del> 45'51		conjunction	817 Dec 24 j 10:21	7° <del>3</del> 17'05	0°-21'-28
retrograde	811 Mar 13 j 02:41	11° <del>2</del> 45'39		minimum elong	817 Dec 24 j 10:21	7° <del>3</del> 17'05	0°21'29
opposition	811 May 28 j 11:56	9° <del>2</del> 46'07	0°-1'-27	max. Earth dist.	817 Dec 25 j 05:15	7° <del>3</del> 19'53	20.61127 AU
min. Earth dist.	811 May 28 j 02:57	9° <del>2</del> 47'02	18.22252 AU	retrograde	818 Apr 11 j 19:23	11° <del>3</del> 21'58	
direct	811 Aug 13 j 16:54	7° <del>2</del> 45'29		min. Earth dist.	818 Jun 27 j 11:26	9° <del>3</del> 24'44	18.63939 AU
				opposition	818 Jun 28 j 06:18	9° <del>3</del> 22'50	0°-25'-16
conjunction	811 Nov 30 j 03:01	11° <del>2</del> 55'46	0°-3'-2	direct	818 Sep 12 j 22:45	7° <del>3</del> 24'26	
minimum elong	811 Nov 30 j 03:00	11° <del>2</del> 55'45	0°03'03				
behind sun begin	811 Nov 29 j 20:28	11° <del>2</del> 54'48		conjunction	818 Dec 28 j 17:41	11° <del>3</del> 25'23	0°-24'-10
behind sun end	811 Nov 30 j 09:31	11° <del>2</del> 56'43		minimum elong	818 Dec 28 j 17:41	11° <del>3</del> 25'23	0°24'11
max. Earth dist.	811 Nov 30 j 12:07	11° <del>2</del> 57'07	20.25380 AU	max. Earth dist.	818 Dec 29 j 14:12	11° <del>3</del> 28'24	20.66676 AU
retrograde	812 Mar 16 j 16:28	16° <del>2</del> 04'42		retrograde	819 Apr 16 j 07:44	15° <del>3</del> 29'43	
opposition	812 Jun 01 j 06:24	14° <del>2</del> 05'13	0°-5'-7	opposition	819 Jul 02 j 19:52	13° <del>3</del> 30'42	0°-28'-12
min. Earth dist.	812 May 31 j 20:21	14° <del>2</del> 06'14	18.28456 AU	min. Earth dist.	819 Jul 01 j 23:00	13° <del>3</del> 32'47	18.69365 AU
direct	812 Aug 17 j 09:40	12° <del>2</del> 04'53		direct	819 Sep 17 j 11:58	11° <del>3</del> 32'37	
conjunction	812 Dec 03 j 14:03	16° <del>2</del> 13'41	0°-6'-18	conjunction	820 Jan 02 j 00:28	15° <del>3</del> 32'29	0°-26'-45
minimum elong	812 Dec 03 j 14:03	16° <del>2</del> 13'41	0°06'20	minimum elong	820 Jan 02 j 00:28	15° <del>3</del> 32'29	0°26'46
behind sun begin	812 Dec 03 j 07:51	16° <del>2</del> 12'47		max. Earth dist.	820 Jan 02 j 21:41	15° <del>3</del> 35'36	20.71960 AU
behind sun end	812 Dec 03 j 20:14	16° <del>2</del> 14'36		retrograde	820 Apr 19 j 17:31	19° <del>3</del> 36'21	
max. Earth dist.	812 Dec 04 j 01:33	16° <del>2</del> 15'25	20.31534 AU	opposition	820 Jul 06 j 09:01	17° <del>3</del> 37'24	0°-30'-58
retrograde	813 Mar 21 j 06:21	20° <del>2</del> 21'51		min. Earth dist.	820 Jul 05 j 12:18	17° <del>3</del> 39'29	18.74515 AU
min. Earth dist.	813 Jun 05 j 11:59	18° <del>2</del> 23'39	18.34559 AU	direct	820 Sep 20 j 21:24	15° <del>3</del> 39'38	
opposition	813 Jun 06 j 00:12	18° <del>2</del> 22'24	0°-8'-43				
direct	813 Aug 22 j 02:43	16° <del>2</del> 22'23		conjunction	821 Jan 05 j 07:07	19° <del>3</del> 38'28	0°-29'-11
				minimum elong	821 Jan 05 j 07:07	19° <del>3</del> 38'28	0°29'12
conjunction	813 Dec 08 j 00:04	20° <del>2</del> 29'43	0°-9'-31	max. Earth dist.	821 Jan 06 j 05:30	19° <del>3</del> 41'45	20.76950 AU
minimum elong	813 Dec 08 j 00:04	20° <del>2</del> 29'43	0°09'32	retrograde	821 Apr 24 j 04:44	23° <del>3</del> 41'54	
behind sun begin	813 Dec 07 j 18:36	20° <del>2</del> 28'55		opposition	821 Jul 10 j 21:33	21° <del>3</del> 43'01	0°-33'-34
behind sun end	813 Dec 08 j 05:33	20° <del>2</del> 30'31		min. Earth dist.	821 Jul 09 j 23:08	21° <del>3</del> 45'16	18.79327 AU
max. Earth dist.	813 Dec 08 j 12:37	20° <del>2</del> 31'36	20.37597 AU	direct	821 Sep 25 j 09:35	19° <del>3</del> 45'31	
retrograde	814 Mar 25 j 18:59	24° <del>2</del> 37'09					
opposition	814 Jun 10 j 17:20	22° <del>2</del> 37'44	0°-12'-15	conjunction	822 Jan 09 j 13:20	23° <del>3</del> 43'24	0°-31'-27
min. Earth dist.	814 Jun 10 j 04:07	22° <del>2</del> 39'04	18.40604 AU	minimum elong	822 Jan 09 j 13:20	23° <del>3</del> 43'24	0°31'28
direct	814 Aug 26 j 17:24	20° <del>2</del> 38'01		max. Earth dist.	822 Jan 10 j 12:05	23° <del>3</del> 46'44	20.81558 AU
				retrograde	822 Apr 28 j 14:14	27° <del>3</del> 46'28	
conjunction	814 Dec 12 j 09:39	24° <del>2</del> 43'57	0°-12'-39	min. Earth dist.	822 Jul 14 j 11:50	25° <del>3</del> 49'48	18.83739 AU
minimum elong	814 Dec 12 j 09:39	24° <del>2</del> 43'57	0°12'39	opposition	822 Jul 15 j 09:41	25° <del>3</del> 47'37	0°-35'-58
behind sun begin	814 Dec 12 j 05:24	24° <del>2</del> 43'20		direct	822 Sep 29 j 18:03	23° <del>3</del> 50'21	
behind sun end	814 Dec 12 j 13:54	24° <del>2</del> 44'35					
max. Earth dist.	814 Dec 13 j 00:29	24° <del>2</del> 46'10	20.43607 AU	conjunction	823 Jan 13 j 19:30	27° <del>3</del> 47'21	0°-33'-33
retrograde	815 Mar 30 j 08:21	28° <del>2</del> 50'39		minimum elong	823 Jan 13 j 19:30	27° <del>3</del> 47'21	0°33'35
opposition	815 Jun 15 j 09:24	26° <del>2</del> 51'18	0°-15'-41	max. Earth dist.	823 Jan 14 j 18:52	27° <del>3</del> 50'45	20.85746 AU
min. Earth dist.	815 Jun 14 j 17:53	26° <del>2</del> 52'52	18.46580 AU		823 Feb 22 j 21:09	0° <del>4</del>	
direct	815 Aug 31 j 08:56	24° <del>2</del> 51'53		retrograde	823 May 03 j 00:26	1° <del>4</del> 50'02	
					823 Jul 16 j 04:48	30° <del>R</del> <del>3</del>	
conjunction	815 Dec 16 j 18:27	28° <del>2</del> 56'30	0°-15'-41	opposition	823 Jul 19 j 20:57	29° <del>3</del> 51'12	0°-38'-12
minimum elong	815 Dec 16 j 18:27	28° <del>2</del> 56'30	0°15'43	min. Earth dist.	823 Jul 18 j 21:47	29° <del>3</del> 53'31	18.87692 AU
behind sun begin	815 Dec 16 j 16:41	28° <del>2</del> 56'14		direct	823 Oct 04 j 04:41	27° <del>3</del> 54'08	

	823 Dec 16 j 06:03	0°		min. Earth dist.	831 Aug 20 j 22:48	1°	53'39"	19.04241 AU
					831 Oct 22 j 06:50	30°		
conjunction	824 Jan 18 j 01:19	1°	50'18"	0°-35'-29"	direct	831 Nov 05 j 12:35	29°	54'53"
minimum elong	824 Jan 18 j 01:19	1°	50'18"	0°35'29"		831 Nov 19 j 12:48	0°	
max. Earth dist.	824 Jan 19 j 00:43	1°	53'42"	20.89453 AU				
retrograde	824 May 06 j 09:06	5°	52'40"		conjunction	832 Feb 18 j 18:39	3°	47'23"
min. Earth dist.	824 Jul 22 j 09:39	3°	56'03"	18.91168 AU	minimum elong	832 Feb 18 j 18:39	3°	47'23"
opposition	824 Jul 23 j 08:01	3°	53'49"	0°-40'-13"	max. Earth dist.	832 Feb 19 j 19:25	3°	50'56"
direct	824 Oct 07 j 12:31	1°	56'54"		retrograde	832 Jun 08 j 03:03	7°	49'05"
					min. Earth dist.	832 Aug 24 j 07:53	5°	52'03"
conjunction	825 Jan 21 j 06:49	5°	52'17"	0°-37'-13"	opposition	832 Aug 25 j 06:26	5°	49'47"
minimum elong	825 Jan 21 j 06:49	5°	52'17"	0°37'15"	direct	832 Nov 08 j 16:57	3°	53'28"
max. Earth dist.	825 Jan 22 j 06:43	5°	55'46"	20.92696 AU				
retrograde	825 May 10 j 18:46	9°	54'23"		conjunction	833 Feb 22 j 00:08	7°	45'55"
opposition	825 Jul 27 j 18:23	7°	55'27"	0°-42'-2"	minimum elong	833 Feb 22 j 00:08	7°	45'55"
min. Earth dist.	825 Jul 26 j 18:46	7°	57'49"	18.94175 AU	max. Earth dist.	833 Feb 23 j 00:37	7°	49'25"
direct	825 Oct 11 j 21:46	5°	58'39"		retrograde	833 Jun 12 j 12:56	11°	47'49"
					opposition	833 Aug 29 j 13:54	9°	48'30"
conjunction	826 Jan 25 j 12:08	9°	53'21"	0°-38'-46"	min. Earth dist.	833 Aug 28 j 14:57	9°	50'48"
minimum elong	826 Jan 25 j 12:08	9°	53'21"	0°38'47"	direct	833 Nov 12 j 22:41	7°	52'13"
max. Earth dist.	826 Jan 26 j 12:09	9°	56'49"	20.95474 AU				
retrograde	826 May 15 j 02:23	13°	55'11"		conjunction	834 Feb 26 j 06:04	11°	44'44"
min. Earth dist.	826 Jul 31 j 05:30	11°	58'27"	18.96751 AU	minimum elong	834 Feb 26 j 06:04	11°	44'44"
opposition	826 Aug 01 j 04:12	11°	56'11"	0°-43'-38"	max. Earth dist.	834 Feb 27 j 05:54	11°	48'08"
direct	826 Oct 16 j 04:44	9°	59'28"		retrograde	834 Jun 16 j 20:20	15°	46'52"
					opposition	834 Sep 02 j 21:12	13°	47'31"
conjunction	827 Jan 29 j 17:19	13°	53'33"	0°-40'-7"	min. Earth dist.	834 Sep 02 j 00:01	13°	49'39"
minimum elong	827 Jan 29 j 17:19	13°	53'33"	0°40'09"	direct	834 Nov 17 j 02:50	11°	51'15"
max. Earth dist.	827 Jan 30 j 17:45	13°	57'05"	20.97853 AU				
	827 Feb 18 j 03:13	15°			conjunction	835 Mar 02 j 12:24	15°	43'55"
retrograde	827 May 19 j 11:46	17°	55'12"		minimum elong	835 Mar 02 j 12:24	15°	43'55"
opposition	827 Aug 05 j 13:25	15°	56'07"	0°-45'-1"	max. Earth dist.	835 Mar 03 j 11:21	15°	47'12"
min. Earth dist.	827 Aug 04 j 13:29	15°	58'30"	18.98938 AU	retrograde	835 Jun 21 j 06:25	19°	46'20"
	827 Aug 29 j 22:23	15°			min. Earth dist.	835 Sep 06 j 07:18	17°	49'03"
direct	827 Oct 20 j 12:43	13°	59'27"		opposition	835 Sep 07 j 04:26	17°	46'56"
	827 Dec 08 j 19:58	15°			direct	835 Nov 21 j 08:42	15°	50'38"
conjunction	828 Feb 02 j 22:12	17°	53'02"	0°-41'-16"	conjunction	836 Mar 05 j 19:00	19°	43'31"
minimum elong	828 Feb 02 j 22:12	17°	53'02"	0°41'18"	minimum elong	836 Mar 05 j 19:00	19°	43'31"
max. Earth dist.	828 Feb 03 j 22:50	17°	56'35"	20.99849 AU	max. Earth dist.	836 Mar 06 j 16:56	19°	46'39"
retrograde	828 May 22 j 18:38	21°	54'34"		retrograde	836 Jun 24 j 14:19	23°	46'15"
opposition	828 Aug 08 j 22:23	19°	55'25"	0°-46'-10"	opposition	836 Sep 10 j 11:49	21°	46'46"
min. Earth dist.	828 Aug 07 j 23:19	19°	57'43"	19.00770 AU	min. Earth dist.	836 Sep 09 j 16:38	21°	48'42"
direct	828 Oct 23 j 18:35	17°	58'50"		direct	836 Nov 24 j 12:54	19°	50'24"
conjunction	829 Feb 06 j 03:14	21°	51'59"	0°-42'-13"	conjunction	837 Mar 10 j 02:11	23°	43'33"
minimum elong	829 Feb 06 j 03:14	21°	51'59"	0°42'14"	minimum elong	837 Mar 10 j 02:11	23°	43'33"
max. Earth dist.	829 Feb 07 j 04:13	21°	55'35"	21.01518 AU	max. Earth dist.	837 Mar 10 j 22:50	23°	46'30"
retrograde	829 May 27 j 04:11	25°	53'28"		retrograde	837 Jun 29 j 00:54	27°	46'38"
min. Earth dist.	829 Aug 12 j 06:36	23°	56'40"	19.02273 AU	opposition	837 Sep 14 j 18:56	25°	47'01"
opposition	829 Aug 13 j 06:46	23°	54'15"	0°-47'-5"	min. Earth dist.	837 Sep 14 j 00:06	25°	48'55"
direct	829 Oct 28 j 01:35	21°	57'44"		direct	837 Nov 28 j 19:17	23°	50'30"
conjunction	830 Feb 10 j 08:13	25°	50'34"	0°-42'-58"	conjunction	838 Mar 14 j 09:47	27°	44'01"
minimum elong	830 Feb 10 j 08:13	25°	50'34"	0°42'59"	minimum elong	838 Mar 14 j 09:47	27°	44'01"
max. Earth dist.	830 Feb 11 j 09:12	25°	54'10"	21.02845 AU	max. Earth dist.	838 Mar 15 j 05:12	27°	46'48"
retrograde	830 May 31 j 10:42	29°	52'04"			838 Apr 25 j 09:43	0°	
opposition	830 Aug 17 j 14:59	27°	52'49"	0°-47'-48"	retrograde	838 Jul 03 j 08:55	1°	47'28"
min. Earth dist.	830 Aug 16 j 15:53	27°	55'08"	19.03433 AU		838 Sep 14 j 00:50	30°	
direct	830 Nov 01 j 06:25	25°	56'22"		min. Earth dist.	838 Sep 18 j 09:25	29°	49'24"
					opposition	838 Sep 19 j 02:10	29°	47'42"
conjunction	831 Feb 14 j 13:23	29°	48'59"	0°-43'-30"	direct	838 Dec 02 j 23:38	27°	51'01"
minimum elong	831 Feb 14 j 13:23	29°	48'59"	0°43'30"		839 Feb 15 j 03:08	0°	
max. Earth dist.	831 Feb 15 j 14:23	29°	52'34"	21.03837 AU				
	831 Feb 17 j 18:09	0°			conjunction	839 Mar 18 j 17:42	1°	44'56"
retrograde	831 Jun 04 j 20:20	3°	50'33"		minimum elong	839 Mar 18 j 17:42	1°	44'56"
opposition	831 Aug 21 j 22:40	1°	51'16"	0°-48'-16"	max. Earth dist.	839 Mar 19 j 11:46	1°	47'31"

retrograde	839 Jul 07 j 19:37	5°♊48'47		retrograde	847 Aug 10 j 13:39	8°♊31'22	
opposition	839 Sep 23 j 09:12	3°♊48'50	0°-43'-47	opposition	847 Oct 25 j 23:43	6°♊30'25	0°-25'-33
min. Earth dist.	839 Sep 22 j 16:52	3°♊50'30	18.94326 AU	min. Earth dist.	847 Oct 25 j 18:01	6°♊31'01	18.59375 AU
direct	839 Dec 07 j 06:25	1°♊51'56		direct	848 Jan 08 j 11:58	4°♊31'39	
conjunction	840 Mar 22 j 02:05	5°♊46'22	0°-38'-56	conjunction	848 Apr 24 j 19:53	8°♊33'22	0°-21'-44
minimum elong	840 Mar 22 j 02:05	5°♊46'22	0°38'57	minimum elong	848 Apr 24 j 19:53	8°♊33'22	0°21'45
max. Earth dist.	840 Mar 22 j 19:06	5°♊48'48	20.92649 AU	max. Earth dist.	848 Apr 25 j 01:18	8°♊34'09	20.56665 AU
retrograde	840 Jul 11 j 04:13	9°♊50'39		retrograde	848 Aug 14 j 02:36	12°♊42'57	
opposition	840 Sep 26 j 16:25	7°♊50'32	0°-42'-12	opposition	848 Oct 29 j 09:07	10°♊41'56	0°-22'-28
min. Earth dist.	840 Sep 26 j 02:01	7°♊52'00	18.90927 AU	min. Earth dist.	848 Oct 29 j 05:37	10°♊42'18	18.53870 AU
direct	840 Dec 10 j 11:11	5°♊53'24		direct	849 Jan 11 j 20:09	8°♊42'54	
conjunction	841 Mar 26 j 10:56	9°♊48'25	0°-37'-24	conjunction	849 Apr 29 j 10:46	12°♊45'52	0°-18'-53
minimum elong	841 Mar 26 j 10:56	9°♊48'25	0°37'25	minimum elong	849 Apr 29 j 10:46	12°♊45'52	0°18'54
max. Earth dist.	841 Mar 27 j 02:35	9°♊50'39	20.89087 AU	max. Earth dist.	849 Apr 29 j 13:17	12°♊46'14	20.51024 AU
retrograde	841 Jul 15 j 15:12	13°♊53'12			849 Jun 08 j 20:08	15°♊	
opposition	841 Sep 30 j 23:35	11°♊52'54	0°-40'-24	retrograde	849 Aug 18 j 17:43	16°♊56'16	
min. Earth dist.	841 Sep 30 j 09:39	11°♊54'19	18.87194 AU		849 Oct 31 j 20:41	15°♊	
direct	841 Dec 14 j 18:03	9°♊55'32		opposition	849 Nov 02 j 18:59	14°♊55'08	0°-19'-14
conjunction	842 Mar 30 j 20:26	13°♊51'14	0°-35'-40	min. Earth dist.	849 Nov 02 j 17:02	14°♊55'21	18.48074 AU
minimum elong	842 Mar 30 j 20:26	13°♊51'14	0°35'41	direct	850 Jan 16 j 06:54	12°♊55'47	
max. Earth dist.	842 Mar 31 j 11:02	13°♊53'19	20.85191 AU		850 Mar 29 j 09:46	15°♊	
retrograde	842 Jul 20 j 00:44	17°♊56'33		conjunction	850 May 04 j 02:37	17°♊00'04	0°-15'-54
opposition	842 Oct 05 j 06:52	15°♊56'06	0°-38'-24	minimum elong	850 May 04 j 02:37	17°♊00'04	0°15'54
min. Earth dist.	842 Oct 04 j 18:52	15°♊57'20	18.83154 AU	max. Earth dist.	850 May 04 j 03:40	17°♊00'13	20.45067 AU
direct	842 Dec 18 j 23:32	13°♊58'29		retrograde	850 Aug 23 j 07:02	21°♊11'14	
conjunction	843 Apr 04 j 06:29	17°♊54'59	0°-33'-46	opposition	850 Nov 07 j 05:20	19°♊10'00	0°-15'-53
minimum elong	843 Apr 04 j 06:29	17°♊54'59	0°33'47	min. Earth dist.	850 Nov 07 j 05:32	19°♊09'59	18.41969 AU
max. Earth dist.	843 Apr 04 j 19:29	17°♊56'50	20.81032 AU	direct	851 Jan 20 j 16:33	17°♊10'18	
retrograde	843 Jul 24 j 12:20	22°♊00'54		conjunction	851 May 08 j 19:07	21°♊15'53	0°-12'-49
opposition	843 Oct 09 j 14:23	20°♊00'18	0°-36'-12	minimum elong	851 May 08 j 19:07	21°♊15'53	0°12'51
min. Earth dist.	843 Oct 09 j 02:53	20°♊01'29	18.78865 AU	behind sun begin	851 May 08 j 15:04	21°♊15'19	
direct	843 Dec 23 j 06:19	18°♊02'27		behind sun end	851 May 08 j 23:11	21°♊16'28	
conjunction	844 Apr 07 j 17:04	21°♊59'48	0°-31'-41	max. Earth dist.	851 May 08 j 17:05	21°♊15'36	20.38846 AU
minimum elong	844 Apr 07 j 17:04	21°♊59'48	0°31'42	retrograde	851 Aug 27 j 22:48	25°♊27'52	
max. Earth dist.	844 Apr 08 j 05:07	22°♊01'32	20.76617 AU	opposition	851 Nov 11 j 16:11	23°♊26'27	0°-12'-25
retrograde	844 Jul 27 j 23:01	26°♊06'23		min. Earth dist.	851 Nov 11 j 18:03	23°♊26'16	18.35630 AU
opposition	844 Oct 12 j 22:17	24°♊05'40	0°-33'-48	direct	852 Jan 25 j 05:05	21°♊26'21	
min. Earth dist.	844 Oct 12 j 12:38	24°♊06'40	18.74331 AU	conjunction	852 May 12 j 12:27	25°♊33'19	0°-9'-39
direct	844 Dec 26 j 12:45	22°♊07'36		minimum elong	852 May 12 j 12:27	25°♊33'19	0°09'40
conjunction	845 Apr 12 j 04:33	26°♊05'55	0°-29'-26	behind sun begin	852 May 12 j 06:56	25°♊32'32	
minimum elong	845 Apr 12 j 04:33	26°♊05'55	0°29'26	behind sun end	852 May 12 j 17:59	25°♊34'06	
max. Earth dist.	845 Apr 12 j 14:42	26°♊07'22	20.71987 AU	max. Earth dist.	852 May 12 j 09:16	25°♊32'52	20.32399 AU
retrograde	845 Jul 09 j 09:34	0°♊		retrograde	852 Aug 31 j 12:51	29°♊46'03	
	845 Aug 01 j 11:47	0°♊13'11		opposition	852 Nov 15 j 03:33	27°♊44'30	0°-8'-51
	845 Aug 24 j 15:34	30°♊		min. Earth dist.	852 Nov 15 j 07:18	27°♊44'06	18.29092 AU
opposition	845 Oct 17 j 06:17	28°♊12'22	0°-31'-14	direct	853 Jan 28 j 16:45	25°♊43'58	
min. Earth dist.	845 Oct 16 j 21:27	28°♊13'17	18.69585 AU	conjunction	853 May 17 j 06:38	29°♊52'19	0°-6'-25
direct	845 Dec 30 j 20:01	26°♊14'04		minimum elong	853 May 17 j 06:37	29°♊52'19	0°06'26
	846 Apr 12 j 19:43	0°♊		behind sun begin	853 May 17 j 00:16	29°♊51'24	
conjunction	846 Apr 16 j 16:53	0°♊13'27	0°-27'-1	behind sun end	853 May 17 j 12:59	29°♊53'14	
minimum elong	846 Apr 16 j 16:53	0°♊13'27	0°27'03	max. Earth dist.	853 May 17 j 00:20	29°♊51'25	20.25806 AU
max. Earth dist.	846 Apr 17 j 01:53	0°♊14'45	20.67122 AU		853 May 19 j 10:43	0°♊	
retrograde	846 Aug 05 j 23:39	4°♊21'28		retrograde	853 Sep 05 j 04:57	4°♊05'50	
opposition	846 Oct 21 j 14:50	2°♊20'35	0°-28'-28	opposition	853 Nov 19 j 15:18	2°♊04'06	0°-5'-13
min. Earth dist.	846 Oct 21 j 08:00	2°♊21'18	18.64598 AU	min. Earth dist.	853 Nov 19 j 20:49	2°♊03'31	18.22454 AU
direct	847 Jan 04 j 03:19	0°♊22'04		direct	854 Feb 02 j 06:20	0°♊03'08	
conjunction	847 Apr 21 j 05:50	4°♊22'34	0°-24'-27	conjunction	854 May 22 j 01:43	4°♊12'55	0°-3'-7
minimum elong	847 Apr 21 j 05:50	4°♊22'34	0°24'28	minimum elong	854 May 22 j 01:42	4°♊12'55	0°03'08
max. Earth dist.	847 Apr 21 j 12:34	4°♊23'32	20.62029 AU	behind sun begin	854 May 21 j 18:57	4°♊11'57	
				behind sun end	854 May 22 j 08:26	4°♊13'53	

max. Earth dist.	854 May 21 j 18:32	4°II1'53	20.19131 AU	conjunction	861 Jun 23 j 12:05	5°☾25'11	0°20'00
retrograde	854 Sep 09 j 20:43	8°II27'12		minimum elong	861 Jun 23 j 12:05	5°☾25'11	0°20'00
opposition	854 Nov 24 j 03:43	6°II25'18	0°-1'-32	max. Earth dist.	861 Jun 22 j 16:41	5°☾22'14	19.75670 AU
min. Earth dist.	854 Nov 24 j 10:44	6°II24'33	18.15768 AU	retrograde	861 Oct 11 j 10:03	9°☾44'41	
direct	855 Feb 06 j 19:49	4°II23'54		opposition	861 Dec 24 j 12:54	7°☾42'19	0°23'57
asc. node	855 Apr 27 j 03:49	6°II52'07		min. Earth dist.	861 Dec 25 j 05:38	7°☾40'30	17.72960 AU
				direct	862 Mar 09 j 14:12	5°☾38'21	
conjunction	855 May 26 j 21:09	8°II35'07	0°00'17				
minimum elong	855 May 26 j 21:10	8°II35'07	0°00'17	conjunction	862 Jun 28 j 13:19	10°☾00'02	0°23'03
behind sun begin	855 May 26 j 14:27	8°II34'08		minimum elong	862 Jun 28 j 13:19	10°☾00'02	0°23'04
behind sun end	855 May 27 j 03:54	8°II36'05		max. Earth dist.	862 Jun 27 j 17:11	9°☾56'58	19.70286 AU
max. Earth dist.	855 May 26 j 11:07	8°II33'38	20.12460 AU	retrograde	862 Oct 16 j 08:13	14°☾20'10	
retrograde	855 Sep 14 j 13:33	12°II50'11		opposition	862 Dec 29 j 06:56	12°☾17'48	0°27'16
opposition	855 Nov 28 j 16:45	10°II48'07	0°02'10	min. Earth dist.	862 Dec 30 j 00:03	12°☾15'56	17.67677 AU
min. Earth dist.	855 Nov 29 j 01:24	10°II47'12	18.09132 AU	direct	863 Mar 14 j 10:37	10°☾13'33	
direct	856 Feb 11 j 10:12	8°II46'16					
				conjunction	863 Jul 03 j 14:56	14°☾36'36	0°25'58
conjunction	856 May 30 j 17:46	12°II58'58	0°03'42	minimum elong	863 Jul 03 j 14:56	14°☾36'36	0°25'58
minimum elong	856 May 30 j 17:46	12°II58'58	0°03'41	max. Earth dist.	863 Jul 02 j 16:42	14°☾33'12	19.65098 AU
behind sun begin	856 May 30 j 11:03	12°II58'00		retrograde	863 Oct 21 j 05:24	18°☾57'19	
behind sun end	856 May 31 j 00:29	12°II59'57		opposition	864 Jan 03 j 01:48	16°☾54'56	0°30'27
max. Earth dist.	856 May 30 j 07:11	12°II57'25	20.05859 AU	min. Earth dist.	864 Jan 03 j 21:03	16°☾52'50	17.62608 AU
retrograde	856 Sep 18 j 07:16	17°II14'47		direct	864 Mar 18 j 06:31	14°☾50'22	
opposition	856 Dec 02 j 06:16	15°II12'37	0°05'54				
min. Earth dist.	856 Dec 02 j 16:01	15°II11'34	18.02592 AU	conjunction	864 Jul 07 j 17:18	19°☾14'44	0°28'44
direct	857 Feb 15 j 01:11	13°II10'21		minimum elong	864 Jul 07 j 17:18	19°☾14'43	0°28'44
				max. Earth dist.	864 Jul 06 j 18:08	19°☾11'10	19.60141 AU
conjunction	857 Jun 04 j 15:02	17°II24'32	0°07'02	retrograde	864 Oct 25 j 04:13	23°☾35'57	
minimum elong	857 Jun 04 j 15:02	17°II24'32	0°07'03	opposition	865 Jan 06 j 21:05	21°☾33'33	0°33'26
behind sun begin	857 Jun 04 j 08:47	17°II23'38		min. Earth dist.	865 Jan 07 j 16:29	21°☾31'26	17.57772 AU
behind sun end	857 Jun 04 j 21:17	17°II25'27		direct	865 Mar 23 j 05:13	19°☾28'40	
max. Earth dist.	857 Jun 04 j 01:34	17°II22'32	19.99397 AU				
retrograde	857 Sep 23 j 01:24	21°II41'08		conjunction	865 Jul 12 j 20:07	23°☾54'15	0°31'19
opposition	857 Dec 06 j 20:35	19°II38'50	0°09'37	minimum elong	865 Jul 12 j 20:07	23°☾54'15	0°31'19
min. Earth dist.	857 Dec 07 j 08:03	19°II37'36	17.96226 AU	max. Earth dist.	865 Jul 11 j 19:31	23°☾50'28	19.55432 AU
direct	858 Feb 19 j 16:32	17°II36'10		retrograde	865 Oct 30 j 01:41	28°☾15'56	
				opposition	866 Jan 11 j 17:18	26°☾13'29	0°36'13
conjunction	858 Jun 09 j 13:09	21°II51'53	0°10'21	min. Earth dist.	866 Jan 12 j 14:39	26°☾11'09	17.53224 AU
minimum elong	858 Jun 09 j 13:09	21°II51'53	0°10'21	direct	866 Mar 28 j 02:49	24°☾08'18	
behind sun begin	858 Jun 09 j 07:52	21°II51'06					
behind sun end	858 Jun 09 j 18:27	21°II52'39		conjunction	866 Jul 17 j 23:02	28°☾35'01	0°33'43
max. Earth dist.	858 Jun 08 j 23:20	21°II49'49	19.93121 AU	minimum elong	866 Jul 17 j 23:02	28°☾35'01	0°33'42
retrograde	858 Sep 27 j 20:55	26°II09'13		max. Earth dist.	866 Jul 16 j 21:32	28°☾31'04	19.51049 AU
opposition	858 Dec 11 j 11:32	24°II06'52	0°13'18		866 Aug 10 j 06:05	0°☾	
min. Earth dist.	858 Dec 11 j 23:41	24°II05'33	17.90058 AU	retrograde	866 Nov 04 j 00:39	2°☾57'05	
direct	859 Feb 24 j 09:00	22°II03'51		opposition	867 Jan 16 j 13:55	0°☾54'35	0°38'46
				min. Earth dist.	867 Jan 17 j 10:59	0°☾52'17	17.49022 AU
conjunction	859 Jun 14 j 11:55	26°II21'04	0°13'38		867 Feb 07 j 02:54	30°☾☾	
minimum elong	859 Jun 14 j 11:55	26°II21'04	0°13'38	direct	867 Apr 02 j 03:31	28°☾49'07	
behind sun begin	859 Jun 14 j 08:25	26°II20'33			867 May 24 j 20:04	0°☾	
behind sun end	859 Jun 14 j 15:26	26°II21'35		max. Earth dist.	867 Jul 22 j 00:28	3°☾12'50	19.47035 AU
max. Earth dist.	859 Jun 13 j 19:29	26°II18'36	19.87073 AU				
	859 Aug 25 j 01:28	0°☾		conjunction	867 Jul 23 j 02:21	3°☾16'50	0°35'53
retrograde	859 Oct 02 j 16:24	0°☾39'09		minimum elong	867 Jul 23 j 02:21	3°☾16'50	0°35'53
	859 Nov 10 j 19:41	30°☾II		retrograde	867 Nov 08 j 22:19	7°☾39'13	
opposition	859 Dec 16 j 03:15	28°II36'47	0°16'56	opposition	868 Jan 21 j 11:11	5°☾36'42	0°41'04
min. Earth dist.	859 Dec 16 j 17:14	28°II35'16	17.84139 AU	min. Earth dist.	868 Jan 22 j 09:47	5°☾34'13	17.45230 AU
direct	860 Feb 29 j 01:38	26°II33'26		direct	868 Apr 06 j 02:39	3°☾30'57	
	860 Jun 04 j 00:33	0°☾		max. Earth dist.	868 Jul 26 j 02:57	7°☾55'25	19.43473 AU
conjunction	860 Jun 18 j 11:38	0°☾52'10	0°16'52	conjunction	868 Jul 27 j 05:47	7°☾59'35	0°37'49
minimum elong	860 Jun 18 j 11:38	0°☾52'10	0°16'52	minimum elong	868 Jul 27 j 05:47	7°☾59'35	0°37'49
max. Earth dist.	860 Jun 17 j 18:46	0°☾49'37	19.81267 AU	retrograde	868 Nov 12 j 21:52	12°☾22'12	
retrograde	860 Oct 06 j 13:26	5°☾10'58		opposition	869 Jan 25 j 08:55	10°☾19'39	0°43'06
opposition	860 Dec 19 j 19:40	3°☾08'36	0°20'29	min. Earth dist.	869 Jan 26 j 06:57	10°☾17'14	17.41909 AU
min. Earth dist.	860 Dec 20 j 10:17	3°☾07'01	17.78440 AU	direct	869 Apr 11 j 05:04	8°☾13'39	
direct	861 Mar 04 j 19:49	1°☾04'57		max. Earth dist.	869 Jul 31 j 07:09	12°☾39'00	19.40396 AU

conjunction	869 Aug 01 j 09:22	12° $\Omega$ 43'05	0°39'29	direct	877 May 19 j 21:54	16° $\mp$ 14'46	
minimum elong	869 Aug 01 j 09:22	12° $\Omega$ 43'05	0°39'30				
	869 Sep 08 j 17:35	15° $\Omega$		conjunction	877 Sep 09 j 09:30	20° $\mp$ 46'03	0°42'45
retrograde	869 Nov 17 j 20:02	17° $\Omega$ 05'52		minimum elong	877 Sep 09 j 09:30	20° $\mp$ 46'03	0°42'46
opposition	870 Jan 30 j 07:21	15° $\Omega$ 03'19	0°44'50	max. Earth dist.	877 Sep 08 j 12:08	20° $\mp$ 42'41	19.36776 AU
min. Earth dist.	870 Jan 31 j 06:19	15° $\Omega$ 00'49	17.39111 AU	retrograde	877 Dec 25 j 19:27	25° $\mp$ 07'55	
	870 Jan 31 j 13:43	15° $\mathcal{R}\Omega$		opposition	878 Mar 09 j 09:36	23° $\mp$ 06'12	0°47'12
direct	870 Apr 16 j 05:21	12° $\Omega$ 57'08		min. Earth dist.	878 Mar 10 j 04:09	23° $\mp$ 04'11	17.37667 AU
	870 Jun 26 j 00:55	15° $\Omega$		direct	878 May 25 j 03:03	21° $\mp$ 00'13	
max. Earth dist.	870 Aug 05 j 09:53	17° $\Omega$ 23'02	19.37891 AU				
				conjunction	878 Sep 14 j 11:02	25° $\mp$ 31'04	0°41'50
conjunction	870 Aug 06 j 12:49	17° $\Omega$ 27'14	0°40'54	minimum elong	878 Sep 14 j 11:02	25° $\mp$ 31'04	0°41'50
minimum elong	870 Aug 06 j 12:49	17° $\Omega$ 27'14	0°40'55	max. Earth dist.	878 Sep 13 j 14:06	25° $\mp$ 27'47	19.38594 AU
retrograde	870 Nov 22 j 20:17	21° $\Omega$ 50'08		retrograde	878 Dec 30 j 17:10	29° $\mp$ 52'31	
opposition	871 Feb 04 j 06:10	19° $\Omega$ 47'36	0°46'16	opposition	879 Mar 14 j 11:01	27° $\mp$ 50'53	0°46'01
min. Earth dist.	871 Feb 05 j 04:12	19° $\Omega$ 45'12	17.36912 AU	min. Earth dist.	879 Mar 15 j 05:17	27° $\mp$ 48'55	17.39705 AU
direct	871 Apr 21 j 07:51	17° $\Omega$ 41'16		direct	879 May 30 j 05:46	25° $\mp$ 45'01	
					879 Sep 15 j 10:33	0° $\underline{\Omega}$	
conjunction	871 Aug 11 j 16:19	22° $\Omega$ 11'56	0°42'03	conjunction	879 Sep 19 j 11:56	0° $\underline{\Omega}$ 15'20	0°40'38
minimum elong	871 Aug 11 j 16:18	22° $\Omega$ 11'56	0°42'02	minimum elong	879 Sep 19 j 11:56	0° $\underline{\Omega}$ 15'20	0°40'38
max. Earth dist.	871 Aug 10 j 14:48	22° $\Omega$ 07'57	19.35990 AU	max. Earth dist.	879 Sep 18 j 16:31	0° $\underline{\Omega}$ 12'17	19.40845 AU
retrograde	871 Nov 27 j 19:44	26° $\Omega$ 34'53		retrograde	880 Jan 04 j 16:41	4° $\underline{\Omega}$ 36'15	
opposition	872 Feb 09 j 05:36	24° $\Omega$ 32'25	0°47'23	opposition	880 Mar 18 j 12:23	2° $\underline{\Omega}$ 34'43	0°44'31
min. Earth dist.	872 Feb 10 j 03:57	24° $\Omega$ 29'59	17.35321 AU	min. Earth dist.	880 Mar 19 j 04:51	2° $\underline{\Omega}$ 32'57	17.42145 AU
direct	872 Apr 25 j 08:55	22° $\Omega$ 26'00		direct	880 Jun 03 j 10:58	0° $\underline{\Omega}$ 29'01	
conjunction	872 Aug 15 j 19:42	26° $\Omega$ 57'07	0°42'54	conjunction	880 Sep 23 j 12:10	4° $\underline{\Omega}$ 58'38	0°39'09
minimum elong	872 Aug 15 j 19:42	26° $\Omega$ 57'07	0°42'54	minimum elong	880 Sep 23 j 12:10	4° $\underline{\Omega}$ 58'38	0°39'09
max. Earth dist.	872 Aug 14 j 17:33	26° $\Omega$ 53'01	19.34719 AU	max. Earth dist.	880 Sep 22 j 17:57	4° $\underline{\Omega}$ 55'46	19.43496 AU
	872 Oct 08 j 04:39	0° $\mp$		retrograde	881 Jan 08 j 13:31	9° $\underline{\Omega}$ 18'59	
retrograde	872 Dec 01 j 20:09	1° $\mp$ 20'04		opposition	881 Mar 23 j 13:45	7° $\underline{\Omega}$ 17'31	0°42'43
	873 Jan 27 j 17:21	30° $\mathcal{R}\Omega$		min. Earth dist.	881 Mar 24 j 05:52	7° $\underline{\Omega}$ 15'48	17.45010 AU
opposition	873 Feb 13 j 05:15	29° $\Omega$ 17'42	0°48'11	direct	881 Jun 08 j 13:12	5° $\underline{\Omega}$ 11'59	
min. Earth dist.	873 Feb 14 j 02:45	29° $\Omega$ 15'21	17.34363 AU				
direct	873 Apr 30 j 10:53	27° $\Omega$ 11'16		conjunction	881 Sep 28 j 11:33	9° $\underline{\Omega}$ 40'46	0°37'25
	873 Jul 24 j 00:27	0° $\mp$		minimum elong	881 Sep 28 j 11:33	9° $\underline{\Omega}$ 40'46	0°37'25
conjunction	873 Aug 20 j 23:07	1° $\mp$ 42'43	0°43'28	max. Earth dist.	881 Sep 27 j 18:50	9° $\underline{\Omega}$ 38'09	19.46586 AU
minimum elong	873 Aug 20 j 23:07	1° $\mp$ 42'43	0°43'27	retrograde	882 Jan 13 j 12:19	14° $\underline{\Omega}$ 00'30	
max. Earth dist.	873 Aug 19 j 22:46	1° $\mp$ 38'54	19.34063 AU	opposition	882 Mar 28 j 14:52	11° $\underline{\Omega}$ 59'07	0°40'38
retrograde	873 Dec 06 j 20:35	6° $\mp$ 05'35		min. Earth dist.	882 Mar 29 j 04:34	11° $\underline{\Omega}$ 57'39	17.48308 AU
opposition	874 Feb 18 j 05:33	4° $\mp$ 03'21	0°48'39	direct	882 Jun 13 j 17:27	9° $\underline{\Omega}$ 53'45	
min. Earth dist.	874 Feb 19 j 02:54	4° $\mp$ 01'02	17.33995 AU				
direct	874 May 05 j 13:03	1° $\mp$ 56'58		conjunction	882 Oct 03 j 10:01	14° $\underline{\Omega}$ 21'37	0°35'26
max. Earth dist.	874 Aug 25 j 01:17	6° $\mp$ 24'42	19.33985 AU	minimum elong	882 Oct 03 j 10:01	14° $\underline{\Omega}$ 21'37	0°35'27
				max. Earth dist.	882 Oct 02 j 19:27	14° $\underline{\Omega}$ 19'20	19.50112 AU
conjunction	874 Aug 26 j 02:00	6° $\mp$ 28'35	0°43'44	retrograde	883 Jan 18 j 08:24	18° $\underline{\Omega}$ 40'41	
minimum elong	874 Aug 26 j 02:00	6° $\mp$ 28'35	0°43'44	opposition	883 Apr 02 j 15:53	16° $\underline{\Omega}$ 39'22	0°38'18
retrograde	874 Dec 11 j 20:23	10° $\mp$ 51'21		min. Earth dist.	883 Apr 03 j 04:58	16° $\underline{\Omega}$ 37'58	17.52066 AU
opposition	875 Feb 23 j 06:09	8° $\mp$ 49'15	0°48'48	direct	883 Jun 18 j 18:43	14° $\underline{\Omega}$ 34'13	
min. Earth dist.	875 Feb 24 j 02:51	8° $\mp$ 46'59	17.34195 AU				
direct	875 May 10 j 15:07	6° $\mp$ 42'55		conjunction	883 Oct 08 j 07:40	19° $\underline{\Omega}$ 01'02	0°33'14
max. Earth dist.	875 Aug 30 j 06:01	11° $\mp$ 10'59	19.34442 AU	minimum elong	883 Oct 08 j 07:40	19° $\underline{\Omega}$ 01'02	0°33'13
				max. Earth dist.	883 Oct 07 j 18:31	18° $\underline{\Omega}$ 58'59	19.54112 AU
conjunction	875 Aug 31 j 04:56	11° $\mp$ 14'35	0°43'42	retrograde	884 Jan 23 j 06:21	23° $\underline{\Omega}$ 19'24	
minimum elong	875 Aug 31 j 04:56	11° $\mp$ 14'35	0°43'43	opposition	884 Apr 06 j 16:18	21° $\underline{\Omega}$ 18'11	0°35'43
retrograde	875 Dec 16 j 20:50	15° $\mp$ 37'07		min. Earth dist.	884 Apr 07 j 02:34	21° $\underline{\Omega}$ 17'06	17.56295 AU
opposition	876 Feb 28 j 06:58	13° $\mp$ 35'09	0°48'36	direct	884 Jun 22 j 21:25	19° $\underline{\Omega}$ 13'18	
min. Earth dist.	876 Feb 29 j 03:07	13° $\mp$ 32'58	17.34891 AU				
direct	876 May 14 j 19:02	11° $\mp$ 28'56		conjunction	884 Oct 12 j 04:35	23° $\underline{\Omega}$ 39'02	0°30'50
max. Earth dist.	876 Sep 03 j 08:22	15° $\mp$ 56'51	19.35380 AU	minimum elong	884 Oct 12 j 04:35	23° $\underline{\Omega}$ 39'02	0°30'50
				max. Earth dist.	884 Oct 11 j 18:11	23° $\underline{\Omega}$ 37'24	19.58582 AU
conjunction	876 Sep 04 j 07:27	16° $\mp$ 00'29	0°43'23	retrograde	885 Jan 27 j 01:47	27° $\underline{\Omega}$ 56'39	
minimum elong	876 Sep 04 j 07:27	16° $\mp$ 00'29	0°43'22	opposition	885 Apr 11 j 16:49	25° $\underline{\Omega}$ 55'35	0°32'55
retrograde	876 Dec 20 j 19:25	20° $\mp$ 22'44		min. Earth dist.	885 Apr 12 j 02:07	25° $\underline{\Omega}$ 54'36	17.61002 AU
opposition	877 Mar 04 j 08:12	18° $\mp$ 20'53	0°48'04	direct	885 Jun 27 j 21:22	23° $\underline{\Omega}$ 51'01	
min. Earth dist.	877 Mar 05 j 03:59	18° $\mp$ 18'45	17.36066 AU				

conjunction	885 Oct 17 j 00:25	28°♄15'33	0°28'14	minimum elong	892 Nov 16 j 21:33	29°♄48'49	0°06'39
minimum elong	885 Oct 17 j 00:25	28°♄15'33	0°28'15	behind sun begin	892 Nov 16 j 15:24	29°♄47'54	
max. Earth dist.	885 Oct 16 j 15:22	28°♄14'09	19.63532 AU	behind sun end	892 Nov 17 j 03:42	29°♄49'44	
	885 Nov 14 j 15:46	0°♄		max. Earth dist.	892 Nov 17 j 02:33	29°♄49'33	20.06011 AU
retrograde	886 Jan 31 j 23:30	2°♄32'28			892 Nov 19 j 22:39	0°♄	
opposition	886 Apr 16 j 16:46	0°♄31'33	0°29'56	retrograde	893 Mar 04 j 04:16	4°♄00'10	
min. Earth dist.	886 Apr 16 j 23:02	0°♄30'53	17.66164 AU	opposition	893 May 19 j 04:20	2°♄00'26	0°05'28
	886 Apr 29 j 07:38	30°♄		min. Earth dist.	893 May 18 j 22:59	2°♄00'59	18.09177 AU
direct	886 Jul 02 j 22:28	28°♄27'21			893 Jul 29 j 08:45	30°♄	
	886 Sep 02 j 03:17	0°♄		direct	893 Aug 04 j 11:14	29°♄59'04	
					893 Aug 10 j 11:22	0°♄	
conjunction	886 Oct 21 j 19:40	2°♄50'39	0°25'29	conjunction	893 Nov 21 j 10:51	4°♄12'23	0°03'18
minimum elong	886 Oct 21 j 19:40	2°♄50'39	0°25'29	minimum elong	893 Nov 21 j 10:50	4°♄12'23	0°03'18
max. Earth dist.	886 Oct 21 j 13:39	2°♄49'43	19.68903 AU	behind sun begin	893 Nov 21 j 04:20	4°♄11'26	
retrograde	887 Feb 05 j 18:04	7°♄06'48		behind sun end	893 Nov 21 j 17:21	4°♄13'21	
opposition	887 Apr 21 j 16:20	5°♄06'05	0°26'47	max. Earth dist.	893 Nov 21 j 16:27	4°♄13'13	20.12372 AU
min. Earth dist.	887 Apr 21 j 21:39	5°♄05'32	17.71720 AU	retrograde	894 Mar 08 j 20:00	8°♄22'56	
direct	887 Jul 07 j 21:33	3°♄02'18		opposition	894 May 24 j 00:19	6°♄23'15	0°01'45
				min. Earth dist.	894 May 23 j 17:20	6°♄23'58	18.15517 AU
conjunction	887 Oct 26 j 13:57	7°♄24'18	0°22'35	direct	894 Aug 09 j 05:51	4°♄22'13	
minimum elong	887 Oct 26 j 13:57	7°♄24'18	0°22'36	desc. node	894 Nov 14 j 06:44	7°♄51'32	
max. Earth dist.	887 Oct 26 j 08:56	7°♄23'32	19.74639 AU				
retrograde	888 Feb 10 j 14:54	11°♄39'42		conjunction	894 Nov 25 j 23:33	8°♄34'01	0°00'-6
opposition	888 Apr 25 j 15:29	9°♄39'10	0°23'28	minimum elong	894 Nov 25 j 23:34	8°♄34'01	0°00'06
min. Earth dist.	888 Apr 25 j 18:04	9°♄38'54	17.77601 AU	behind sun begin	894 Nov 25 j 17:17	8°♄33'06	
direct	888 Jul 11 j 21:39	7°♄35'48		behind sun end	894 Nov 26 j 05:50	8°♄34'57	
				max. Earth dist.	894 Nov 26 j 07:47	8°♄35'15	20.18677 AU
conjunction	888 Oct 30 j 07:30	11°♄56'28	0°19'34	retrograde	895 Mar 13 j 10:08	12°♄43'42	
minimum elong	888 Oct 30 j 07:30	11°♄56'28	0°19'33	opposition	895 May 28 j 19:20	10°♄44'06	0°-1'-56
max. Earth dist.	888 Oct 30 j 05:34	11°♄56'10	19.80647 AU	min. Earth dist.	895 May 28 j 10:46	10°♄44'58	18.21782 AU
	888 Dec 24 j 04:56	15°♄		direct	895 Aug 14 j 01:08	8°♄43'22	
retrograde	889 Feb 14 j 08:25	16°♄11'05					
	889 Apr 10 j 07:04	15°♄		conjunction	895 Nov 30 j 11:15	12°♄53'39	0°-3'-29
opposition	889 Apr 30 j 14:23	14°♄10'45	0°20'02	minimum elong	895 Nov 30 j 11:15	12°♄53'39	0°03'30
min. Earth dist.	889 Apr 30 j 15:54	14°♄10'36	17.83714 AU	behind sun begin	895 Nov 30 j 04:46	12°♄52'41	
direct	889 Jul 16 j 20:25	12°♄07'50		behind sun end	895 Nov 30 j 17:45	12°♄54'36	
	889 Oct 11 j 01:33	15°♄		max. Earth dist.	895 Nov 30 j 20:13	12°♄54'59	20.24915 AU
				retrograde	896 Mar 17 j 00:13	17°♄02'30	
conjunction	889 Nov 04 j 00:09	16°♄27'05	0°16'26	opposition	896 Jun 01 j 13:50	15°♄02'56	0°-5'-36
minimum elong	889 Nov 04 j 00:09	16°♄27'05	0°16'27	min. Earth dist.	896 Jun 01 j 03:50	15°♄03'57	18.28009 AU
max. Earth dist.	889 Nov 03 j 23:01	16°♄26'55	19.86862 AU	direct	896 Aug 17 j 17:23	13°♄02'29	
retrograde	890 Feb 19 j 03:48	20°♄40'55					
opposition	890 May 05 j 12:40	18°♄40'45	0°16'29	conjunction	896 Dec 03 j 22:07	17°♄11'17	0°-6'-44
min. Earth dist.	890 May 05 j 11:48	18°♄40'51	17.90009 AU	minimum elong	896 Dec 03 j 22:08	17°♄11'17	0°06'45
direct	890 Jul 21 j 19:28	16°♄38'14		behind sun begin	896 Dec 03 j 16:01	17°♄10'23	
				behind sun end	896 Dec 04 j 04:15	17°♄12'11	
conjunction	890 Nov 08 j 16:05	20°♄56'04	0°13'13	max. Earth dist.	896 Dec 04 j 09:50	17°♄13'02	20.31119 AU
minimum elong	890 Nov 08 j 16:06	20°♄56'04	0°13'13	retrograde	897 Mar 21 j 13:39	21°♄19'21	
behind sun begin	890 Nov 08 j 12:09	20°♄55'29		opposition	897 Jun 06 j 07:35	19°♄19'49	0°-9'-11
behind sun end	890 Nov 08 j 20:02	20°♄56'40		min. Earth dist.	897 Jun 05 j 19:29	19°♄21'03	18.34196 AU
max. Earth dist.	890 Nov 08 j 17:51	20°♄56'20	19.93208 AU	direct	897 Aug 22 j 11:08	17°♄19'41	
retrograde	891 Feb 23 j 19:46	25°♄09'05					
opposition	891 May 10 j 10:30	23°♄09'06	0°12'52	conjunction	897 Dec 08 j 08:15	21°♄27'01	0°-9'-56
min. Earth dist.	891 May 10 j 08:29	23°♄09'18	17.96385 AU	minimum elong	897 Dec 08 j 08:15	21°♄27'01	0°09'56
direct	891 Jul 26 j 17:27	21°♄07'00		behind sun begin	897 Dec 08 j 02:54	21°♄26'14	
				behind sun end	897 Dec 08 j 13:36	21°♄27'48	
conjunction	891 Nov 13 j 07:08	25°♄23'20	0°09'57	max. Earth dist.	897 Dec 08 j 20:52	21°♄28'54	20.37293 AU
minimum elong	891 Nov 13 j 07:08	25°♄23'20	0°09'56	retrograde	898 Mar 26 j 02:34	25°♄34'21	
behind sun begin	891 Nov 13 j 01:46	25°♄22'32		min. Earth dist.	898 Jun 10 j 11:12	23°♄36'13	18.40373 AU
behind sun end	891 Nov 13 j 12:29	25°♄24'08		opposition	898 Jun 11 j 00:31	23°♄34'52	0°-12'-42
max. Earth dist.	891 Nov 13 j 09:26	25°♄23'40	19.99607 AU	direct	898 Aug 27 j 01:26	21°♄35'03	
retrograde	892 Feb 28 j 13:21	29°♄35'32					
opposition	892 May 14 j 07:38	27°♄35'41	0°09'11	conjunction	898 Dec 12 j 17:46	25°♄41'01	0°-13'-3
min. Earth dist.	892 May 14 j 03:41	27°♄36'05	18.02797 AU	minimum elong	898 Dec 12 j 17:46	25°♄41'01	0°13'04
direct	892 Jul 30 j 14:32	25°♄33'57		behind sun begin	898 Dec 12 j 13:44	25°♄40'25	
				behind sun end	898 Dec 12 j 21:48	25°♄41'36	
conjunction	892 Nov 16 j 21:32	29°♄48'49	0°06'38				



max. Earth dist.	898 Dec 13 j 08:50	25° $\mathring{A}$ 43'16	20.43447 AU	max. Earth dist.	907 Jan 15 j 03:11	28° $\mathring{B}$ 49'03	20.85560 AU
retrograde	899 Mar 30 j 15:20	29° $\mathring{A}$ 47'38			907 Feb 04 j 17:22	0° $\mathring{A}$	
opposition	899 Jun 15 j 16:42	27° $\mathring{A}$ 48'15	0°-16'-7	retrograde	907 May 03 j 09:50	2° $\mathring{A}$ 48'27	
min. Earth dist.	899 Jun 15 j 01:12	27° $\mathring{A}$ 49'49	18.46492 AU	min. Earth dist.	907 Jul 19 j 06:18	0° $\mathring{A}$ 51'56	18.87430 AU
direct	899 Aug 31 j 16:58	25° $\mathring{A}$ 48'48		opposition	907 Jul 20 j 04:58	0° $\mathring{A}$ 49'40	0°-38'-31
					907 Aug 10 j 14:29	30° $\mathring{R}$ $\mathring{B}$	
conjunction	899 Dec 17 j 02:30	29° $\mathring{A}$ 53'25	0°-16'-5	direct	907 Oct 04 j 12:24	28° $\mathring{B}$ 52'37	
minimum elong	899 Dec 17 j 02:30	29° $\mathring{A}$ 53'25	0°16'05		907 Nov 25 j 17:02	0° $\mathring{A}$	
behind sun begin	899 Dec 17 j 01:29	29° $\mathring{A}$ 53'16					
behind sun end	899 Dec 17 j 03:31	29° $\mathring{A}$ 53'34		conjunction	908 Jan 18 j 09:57	2° $\mathring{A}$ 48'54	0°-35'-45
max. Earth dist.	899 Dec 17 j 18:23	29° $\mathring{A}$ 55'47	20.49523 AU	minimum elong	908 Jan 18 j 09:57	2° $\mathring{A}$ 48'54	0°35'46
	899 Dec 18 j 22:38	0° $\mathring{B}$		max. Earth dist.	908 Jan 19 j 08:50	2° $\mathring{A}$ 52'14	20.89125 AU
retrograde	900 Apr 03 j 03:24	3° $\mathring{B}$ 59'24		retrograde	908 May 06 j 17:31	6° $\mathring{A}$ 51'20	
opposition	900 Jun 19 j 08:22	2° $\mathring{B}$ 00'07	0°-19'-26	opposition	908 Jul 23 j 16:04	4° $\mathring{A}$ 52'29	0°-40'-30
min. Earth dist.	900 Jun 18 j 15:59	2° $\mathring{B}$ 01'46	18.52531 AU	min. Earth dist.	908 Jul 22 j 18:06	4° $\mathring{A}$ 54'41	18.90780 AU
direct	900 Sep 04 j 05:43	0° $\mathring{B}$ 01'01		direct	908 Oct 07 j 20:12	2° $\mathring{A}$ 55'34	
conjunction	900 Dec 20 j 10:51	4° $\mathring{B}$ 04'23	0°-19'-1	conjunction	909 Jan 21 j 15:31	6° $\mathring{A}$ 51'04	0°-37'-28
minimum elong	900 Dec 20 j 10:51	4° $\mathring{B}$ 04'23	0°19'02	minimum elong	909 Jan 21 j 15:31	6° $\mathring{A}$ 51'04	0°37'28
max. Earth dist.	900 Dec 21 j 04:53	4° $\mathring{B}$ 07'04	20.55499 AU	max. Earth dist.	909 Jan 22 j 15:16	6° $\mathring{A}$ 54'30	20.92266 AU
retrograde	901 Apr 07 j 15:44	8° $\mathring{B}$ 09'47		retrograde	909 May 11 j 03:34	10° $\mathring{A}$ 53'12	
opposition	901 Jun 23 j 23:19	6° $\mathring{B}$ 10'37	0°-22'-37	min. Earth dist.	909 Jul 27 j 03:03	8° $\mathring{A}$ 56'36	18.93716 AU
min. Earth dist.	901 Jun 23 j 04:51	6° $\mathring{B}$ 12'29	18.58424 AU	opposition	909 Jul 28 j 02:21	8° $\mathring{A}$ 54'17	0°-42'-17
direct	901 Sep 08 j 19:21	4° $\mathring{B}$ 11'53		direct	909 Oct 12 j 06:13	6° $\mathring{A}$ 57'27	
conjunction	901 Dec 24 j 18:32	8° $\mathring{B}$ 14'03	0°-21'-50	conjunction	910 Jan 25 j 20:45	10° $\mathring{A}$ 52'15	0°-38'-59
minimum elong	901 Dec 24 j 18:32	8° $\mathring{B}$ 14'03	0°21'51	minimum elong	910 Jan 25 j 20:45	10° $\mathring{A}$ 52'15	0°39'01
max. Earth dist.	901 Dec 25 j 13:14	8° $\mathring{B}$ 16'49	20.61295 AU	max. Earth dist.	910 Jan 26 j 20:31	10° $\mathring{A}$ 55'42	20.95002 AU
retrograde	902 Apr 12 j 03:08	12° $\mathring{B}$ 18'55		retrograde	910 May 15 j 10:54	14° $\mathring{A}$ 54'09	
opposition	902 Jun 28 j 13:48	10° $\mathring{B}$ 19'52	0°-25'-41	opposition	910 Aug 01 j 12:17	12° $\mathring{A}$ 55'08	0°-43'-51
min. Earth dist.	902 Jun 27 j 18:58	10° $\mathring{B}$ 21'45	18.64122 AU	min. Earth dist.	910 Jul 31 j 13:44	12° $\mathring{A}$ 57'23	18.96279 AU
direct	902 Sep 13 j 06:39	8° $\mathring{B}$ 21'29		direct	910 Oct 16 j 12:36	10° $\mathring{A}$ 58'24	
conjunction	902 Dec 29 j 02:01	12° $\mathring{B}$ 22'32	0°-24'-32	conjunction	911 Jan 30 j 01:54	14° $\mathring{A}$ 52'35	0°-40'-18
minimum elong	902 Dec 29 j 02:00	12° $\mathring{B}$ 22'31	0°24'33	minimum elong	911 Jan 30 j 01:54	14° $\mathring{A}$ 52'35	0°40'19
max. Earth dist.	902 Dec 29 j 22:22	12° $\mathring{B}$ 25'32	20.66863 AU	max. Earth dist.	911 Jan 31 j 02:25	14° $\mathring{A}$ 56'07	20.97389 AU
retrograde	903 Apr 16 j 15:06	16° $\mathring{B}$ 26'53			911 Feb 01 j 05:13	15° $\mathring{A}$	
min. Earth dist.	903 Jul 02 j 06:48	14° $\mathring{B}$ 30'00	18.69544 AU	retrograde	911 May 19 j 19:55	18° $\mathring{A}$ 54'17	
opposition	903 Jul 03 j 03:23	14° $\mathring{B}$ 27'57	0°-28'-35	opposition	911 Aug 05 j 21:27	16° $\mathring{A}$ 55'12	0°-45'-12
direct	903 Sep 17 j 18:52	12° $\mathring{B}$ 29'55		min. Earth dist.	911 Aug 04 j 21:35	16° $\mathring{A}$ 57'35	18.98496 AU
					911 Oct 13 j 05:52	15° $\mathring{R}$ $\mathring{A}$	
conjunction	904 Jan 02 j 08:59	16° $\mathring{B}$ 29'53	0°-27'-6	direct	911 Oct 20 j 21:16	14° $\mathring{A}$ 58'32	
minimum elong	904 Jan 02 j 08:59	16° $\mathring{B}$ 29'53	0°27'06		911 Oct 28 j 09:28	15° $\mathring{A}$	
max. Earth dist.	904 Jan 03 j 05:42	16° $\mathring{B}$ 32'56	20.72122 AU				
retrograde	904 Apr 20 j 01:28	20° $\mathring{B}$ 33'48		conjunction	912 Feb 03 j 06:53	18° $\mathring{A}$ 52'13	0°-41'-25
opposition	904 Jul 06 j 16:45	18° $\mathring{B}$ 34'57	0°-31'-20	minimum elong	912 Feb 03 j 06:53	18° $\mathring{A}$ 52'13	0°41'27
min. Earth dist.	904 Jul 05 j 20:19	18° $\mathring{B}$ 36'59	18.74646 AU	max. Earth dist.	912 Feb 04 j 07:22	18° $\mathring{A}$ 55'45	20.99436 AU
direct	904 Sep 21 j 05:12	16° $\mathring{B}$ 37'14		retrograde	912 May 23 j 03:18	22° $\mathring{A}$ 53'48	
				min. Earth dist.	912 Aug 08 j 07:26	20° $\mathring{A}$ 56'58	19.00391 AU
conjunction	905 Jan 05 j 15:39	20° $\mathring{B}$ 36'11	0°-29'-30	opposition	912 Aug 09 j 06:30	20° $\mathring{A}$ 54'39	0°-46'-19
minimum elong	905 Jan 05 j 15:39	20° $\mathring{B}$ 36'11	0°29'31	direct	912 Oct 24 j 02:43	18° $\mathring{A}$ 58'04	
max. Earth dist.	905 Jan 06 j 13:41	20° $\mathring{B}$ 39'25	20.77034 AU				
retrograde	905 Apr 24 j 13:33	24° $\mathring{B}$ 39'41		conjunction	913 Feb 06 j 11:52	22° $\mathring{A}$ 51'19	0°-42'-21
min. Earth dist.	905 Jul 10 j 07:27	22° $\mathring{B}$ 43'05	18.79354 AU	minimum elong	913 Feb 06 j 11:52	22° $\mathring{A}$ 51'19	0°42'22
opposition	905 Jul 11 j 05:25	22° $\mathring{B}$ 40'53	0°-33'-55	max. Earth dist.	913 Feb 07 j 12:56	22° $\mathring{A}$ 54'55	21.01172 AU
direct	905 Sep 25 j 16:30	20° $\mathring{B}$ 43'27		retrograde	913 May 27 j 12:10	26° $\mathring{A}$ 52'51	
				opposition	913 Aug 13 j 14:59	24° $\mathring{A}$ 53'39	0°-47'-13
conjunction	906 Jan 09 j 22:04	24° $\mathring{B}$ 41'27	0°-31'-46	min. Earth dist.	913 Aug 12 j 14:47	24° $\mathring{A}$ 56'05	19.01955 AU
minimum elong	906 Jan 09 j 22:04	24° $\mathring{B}$ 41'27	0°31'46	direct	913 Oct 28 j 10:00	22° $\mathring{A}$ 57'09	
max. Earth dist.	906 Jan 10 j 20:08	24° $\mathring{B}$ 44'41	20.81519 AU				
retrograde	906 Apr 28 j 22:25	28° $\mathring{B}$ 44'34		conjunction	914 Feb 10 j 16:56	26° $\mathring{A}$ 50'04	0°-43'-3
opposition	906 Jul 15 j 17:31	26° $\mathring{B}$ 45'48	0°-36'-18	minimum elong	914 Feb 10 j 16:56	26° $\mathring{A}$ 50'04	0°43'04
min. Earth dist.	906 Jul 14 j 20:09	26° $\mathring{B}$ 47'56	18.83628 AU	max. Earth dist.	914 Feb 11 j 17:43	26° $\mathring{A}$ 53'38	21.02557 AU
direct	906 Sep 30 j 01:43	24° $\mathring{B}$ 48'35			914 Apr 15 j 01:58	0° $\mathring{H}$	
				retrograde	914 May 31 j 19:35	0° $\mathring{H}$ 51'37	
conjunction	907 Jan 14 j 04:17	28° $\mathring{B}$ 45'42	0°-33'-51		914 Jul 19 j 00:41	30° $\mathring{R}$ $\mathring{A}$	
minimum elong	907 Jan 14 j 04:17	28° $\mathring{B}$ 45'42	0°33'51	opposition	914 Aug 17 j 23:09	28° $\mathring{A}$ 52'23	0°-47'-53

min. Earth dist.	914 Aug 17 j 00:06	28° $\approx$ 54'41	19.03168 AU		922 Oct 09 j 13:00	30° $\mathbb{R}$ $\mathbb{H}$	
direct	914 Nov 01 j 14:37	26° $\approx$ 55'57		direct	922 Dec 03 j 09:50	28° $\mathbb{H}$ 50'49	
	915 Jan 31 j 16:58	0° $\mathbb{H}$			923 Jan 25 j 04:31	0° $\mathbb{Y}$	
conjunction	915 Feb 14 j 22:12	0° $\mathbb{H}$ 48'39	0°-43'-34	conjunction	923 Mar 19 j 02:50	2° $\mathbb{Y}$ 44'47	0°-40'-3
minimum elong	915 Feb 14 j 22:12	0° $\mathbb{H}$ 48'39	0°43'35	minimum elong	923 Mar 19 j 02:50	2° $\mathbb{Y}$ 44'47	0°40'04
max. Earth dist.	915 Feb 15 j 23:12	0° $\mathbb{H}$ 52'14	21.03592 AU	max. Earth dist.	923 Mar 19 j 20:57	2° $\mathbb{Y}$ 47'23	20.94932 AU
retrograde	915 Jun 05 j 04:40	4° $\mathbb{H}$ 50'15		retrograde	923 Jul 08 j 03:52	6° $\mathbb{Y}$ 48'41	
min. Earth dist.	915 Aug 21 j 07:12	2° $\mathbb{H}$ 53'24	19.04006 AU	opposition	923 Sep 23 j 18:11	4° $\mathbb{Y}$ 48'39	0°-43'-32
opposition	915 Aug 22 j 07:04	2° $\mathbb{H}$ 51'00	0°-48'-20	min. Earth dist.	923 Sep 23 j 01:50	4° $\mathbb{Y}$ 50'19	18.93400 AU
direct	915 Nov 05 j 21:06	0° $\mathbb{H}$ 54'39		direct	923 Dec 07 j 16:07	2° $\mathbb{Y}$ 51'40	
conjunction	916 Feb 19 j 03:24	4° $\mathbb{H}$ 47'12	0°-43'-52	conjunction	924 Mar 22 j 11:00	6° $\mathbb{Y}$ 46'10	0°-38'-41
minimum elong	916 Feb 19 j 03:24	4° $\mathbb{H}$ 47'12	0°43'52	minimum elong	924 Mar 22 j 11:00	6° $\mathbb{Y}$ 46'10	0°38'42
max. Earth dist.	916 Feb 20 j 03:58	4° $\mathbb{H}$ 50'43	21.04225 AU	max. Earth dist.	924 Mar 23 j 03:59	6° $\mathbb{Y}$ 48'36	20.91733 AU
retrograde	916 Jun 08 j 12:17	8° $\mathbb{H}$ 48'57		retrograde	924 Jul 11 j 12:15	10° $\mathbb{Y}$ 50'33	
opposition	916 Aug 25 j 14:59	6° $\mathbb{H}$ 49'41	0°-48'-32	min. Earth dist.	924 Sep 26 j 11:00	8° $\mathbb{Y}$ 51'49	18.90033 AU
min. Earth dist.	916 Aug 24 j 16:34	6° $\mathbb{H}$ 51'56	19.04432 AU	opposition	924 Sep 27 j 01:26	8° $\mathbb{Y}$ 50'21	0°-41'-54
direct	916 Nov 09 j 01:22	4° $\mathbb{H}$ 53'22		direct	924 Dec 10 j 20:52	6° $\mathbb{Y}$ 53'10	
conjunction	917 Feb 22 j 09:10	8° $\mathbb{H}$ 45'54	0°-43'-57	conjunction	925 Mar 26 j 19:53	10° $\mathbb{Y}$ 48'16	0°-37'-7
minimum elong	917 Feb 22 j 09:10	8° $\mathbb{H}$ 45'54	0°43'59	minimum elong	925 Mar 26 j 19:53	10° $\mathbb{Y}$ 48'16	0°37'08
max. Earth dist.	917 Feb 23 j 09:33	8° $\mathbb{H}$ 49'23	21.04439 AU	max. Earth dist.	925 Mar 27 j 11:47	10° $\mathbb{Y}$ 50'33	20.88221 AU
retrograde	917 Jun 12 j 22:02	12° $\mathbb{H}$ 47'50		retrograde	925 Jul 15 j 23:51	14° $\mathbb{Y}$ 53'10	
opposition	917 Aug 29 j 22:28	10° $\mathbb{H}$ 48'31	0°-48'-31	opposition	925 Oct 01 j 08:30	12° $\mathbb{Y}$ 52'49	0°-40'-5
min. Earth dist.	917 Aug 28 j 23:45	10° $\mathbb{H}$ 50'48	19.04409 AU	min. Earth dist.	925 Sep 30 j 18:18	12° $\mathbb{Y}$ 54'16	18.86368 AU
direct	917 Nov 13 j 07:35	8° $\mathbb{H}$ 52'14		direct	925 Dec 15 j 03:33	10° $\mathbb{Y}$ 55'24	
conjunction	918 Feb 26 j 15:13	12° $\mathbb{H}$ 44'50	0°-43'-50	conjunction	926 Mar 31 j 05:19	14° $\mathbb{Y}$ 51'14	0°-35'-22
minimum elong	918 Feb 26 j 15:13	12° $\mathbb{H}$ 44'50	0°43'51	minimum elong	926 Mar 31 j 05:20	14° $\mathbb{Y}$ 51'14	0°35'23
max. Earth dist.	918 Feb 27 j 14:36	12° $\mathbb{H}$ 48'10	21.04162 AU	max. Earth dist.	926 Mar 31 j 20:00	14° $\mathbb{Y}$ 53'20	20.84408 AU
retrograde	918 Jun 17 j 05:39	16° $\mathbb{H}$ 47'00		retrograde	926 Jul 20 j 08:55	18° $\mathbb{Y}$ 56'41	
min. Earth dist.	918 Sep 02 j 09:14	14° $\mathbb{H}$ 49'44	19.03876 AU	opposition	926 Oct 05 j 15:58	16° $\mathbb{Y}$ 56'12	0°-38'-3
opposition	918 Sep 03 j 06:03	14° $\mathbb{H}$ 47'39	0°-48'-16	min. Earth dist.	926 Oct 05 j 03:42	16° $\mathbb{Y}$ 57'28	18.82418 AU
direct	918 Nov 17 j 11:52	12° $\mathbb{H}$ 51'21		direct	926 Dec 19 j 08:14	14° $\mathbb{Y}$ 58'35	
conjunction	919 Mar 02 j 21:37	16° $\mathbb{H}$ 44'04	0°-43'-30	conjunction	927 Apr 04 j 15:15	18° $\mathbb{Y}$ 55'12	0°-33'-26
minimum elong	919 Mar 02 j 21:37	16° $\mathbb{H}$ 44'04	0°43'31	minimum elong	927 Apr 04 j 15:15	18° $\mathbb{Y}$ 55'12	0°33'27
max. Earth dist.	919 Mar 03 j 20:17	16° $\mathbb{H}$ 47'19	21.03366 AU	max. Earth dist.	927 Apr 05 j 04:37	18° $\mathbb{Y}$ 57'07	20.80342 AU
retrograde	919 Jun 21 j 15:48	20° $\mathbb{H}$ 46'31		retrograde	927 Jul 24 j 21:43	23° $\mathbb{Y}$ 01'16	
opposition	919 Sep 07 j 13:24	18° $\mathbb{H}$ 47'05	0°-47'-47	opposition	927 Oct 09 j 23:33	21° $\mathbb{Y}$ 00'40	0°-35'-49
min. Earth dist.	919 Sep 06 j 16:36	18° $\mathbb{H}$ 49'11	19.02800 AU	min. Earth dist.	927 Oct 09 j 11:37	21° $\mathbb{Y}$ 01'54	18.78223 AU
direct	919 Nov 21 j 18:10	16° $\mathbb{H}$ 50'45		direct	927 Dec 23 j 15:43	19° $\mathbb{Y}$ 02'51	
conjunction	920 Mar 06 j 04:22	20° $\mathbb{H}$ 43'40	0°-42'-57	conjunction	928 Apr 08 j 01:58	23° $\mathbb{Y}$ 00'20	0°-31'-20
minimum elong	920 Mar 06 j 04:22	20° $\mathbb{H}$ 43'40	0°42'59	minimum elong	928 Apr 08 j 01:58	23° $\mathbb{Y}$ 00'20	0°31'21
max. Earth dist.	920 Mar 07 j 01:44	20° $\mathbb{H}$ 46'43	21.02013 AU	max. Earth dist.	928 Apr 08 j 14:09	23° $\mathbb{Y}$ 02'05	20.76023 AU
retrograde	920 Jun 24 j 23:19	24° $\mathbb{H}$ 46'26		retrograde	928 Jul 28 j 07:54	27° $\mathbb{Y}$ 07'04	
opposition	920 Sep 10 j 20:50	22° $\mathbb{H}$ 46'53	0°-47'-4	opposition	928 Oct 13 j 07:27	25° $\mathbb{Y}$ 06'23	0°-33'-24
min. Earth dist.	920 Sep 10 j 02:06	22° $\mathbb{H}$ 48'46	19.01175 AU	min. Earth dist.	928 Oct 12 j 21:36	25° $\mathbb{Y}$ 07'24	18.73780 AU
direct	920 Nov 24 j 22:47	20° $\mathbb{H}$ 50'26		direct	928 Dec 26 j 20:55	23° $\mathbb{Y}$ 08'20	
conjunction	921 Mar 10 j 11:29	24° $\mathbb{H}$ 43'37	0°-42'-12	conjunction	929 Apr 12 j 13:30	27° $\mathbb{Y}$ 06'47	0°-29'-3
minimum elong	921 Mar 10 j 11:29	24° $\mathbb{H}$ 43'37	0°42'12	minimum elong	929 Apr 12 j 13:30	27° $\mathbb{Y}$ 06'47	0°29'05
max. Earth dist.	921 Mar 11 j 07:53	24° $\mathbb{H}$ 46'32	21.00135 AU	max. Earth dist.	929 Apr 12 j 23:59	27° $\mathbb{Y}$ 08'18	20.71471 AU
retrograde	921 Jun 29 j 09:38	28° $\mathbb{H}$ 46'43			929 Jun 06 j 19:14	0° $\mathbb{B}$	
min. Earth dist.	921 Sep 14 j 09:28	26° $\mathbb{H}$ 48'54	18.99031 AU	retrograde	929 Aug 01 j 21:32	1° $\mathbb{B}$ 14'14	
opposition	921 Sep 15 j 04:01	26° $\mathbb{H}$ 47'01	0°-46'-7		929 Sep 28 j 10:32	30° $\mathbb{R}$ $\mathbb{Y}$	
direct	921 Nov 29 j 05:03	24° $\mathbb{H}$ 50'26		opposition	929 Oct 17 j 15:37	29° $\mathbb{Y}$ 13'27	0°-30'-47
conjunction	922 Mar 14 j 18:58	28° $\mathbb{H}$ 43'59	0°-41'-14	min. Earth dist.	929 Oct 17 j 06:31	29° $\mathbb{Y}$ 14'24	18.69091 AU
minimum elong	922 Mar 14 j 18:58	28° $\mathbb{H}$ 43'59	0°41'15	direct	929 Dec 31 j 05:24	27° $\mathbb{Y}$ 15'12	
max. Earth dist.	922 Mar 15 j 14:03	28° $\mathbb{H}$ 46'42	20.97745 AU		930 Mar 26 j 05:17	0° $\mathbb{B}$	
	922 Apr 06 j 07:04	0° $\mathbb{Y}$		conjunction	930 Apr 17 j 01:51	1° $\mathbb{B}$ 14'42	0°-26'-37
retrograde	922 Jul 03 j 17:18	2° $\mathbb{Y}$ 47'27		minimum elong	930 Apr 17 j 01:51	1° $\mathbb{B}$ 14'42	0°26'37
opposition	922 Sep 19 j 11:07	0° $\mathbb{Y}$ 47'35	0°-44'-56	max. Earth dist.	930 Apr 17 j 10:55	1° $\mathbb{B}$ 16'00	20.66640 AU
min. Earth dist.	922 Sep 18 j 18:39	0° $\mathbb{Y}$ 49'15	18.96413 AU	retrograde	930 Aug 06 j 09:02	5° $\mathbb{B}$ 22'52	

opposition	930 Oct 22 j 00:10	3°♄22'01	0°-28'-1	behind sun end	937 May 17 j 22:10	0°♂54'13	
min. Earth dist.	930 Oct 21 j 17:24	3°♄22'43	18.64118 AU	max. Earth dist.	937 May 17 j 09:48	0°♂52'26	20.25031 AU
direct	931 Jan 04 j 12:03	1°♄23'31		retrograde	937 Sep 05 j 14:03	5°♂06'49	
				opposition	937 Nov 20 j 00:57	3°♂04'56	0°-4'-40
conjunction	931 Apr 21 j 15:00	5°♄24'08	0°-24'-1	min. Earth dist.	937 Nov 20 j 06:00	3°♂04'24	18.21726 AU
minimum elong	931 Apr 21 j 15:01	5°♄24'09	0°24'03	direct	938 Feb 02 j 15:46	1°♂03'52	
max. Earth dist.	931 Apr 21 j 21:52	5°♄25'08	20.61535 AU				
retrograde	931 Aug 10 j 23:11	9°♄33'04		conjunction	938 May 22 j 10:37	5°♂13'36	0°-2'-38
opposition	931 Oct 26 j 09:09	7°♄32'07	0°-25'-4	minimum elong	938 May 22 j 10:37	5°♂13'36	0°02'38
min. Earth dist.	931 Oct 26 j 03:29	7°♄32'43	18.58856 AU	behind sun begin	938 May 22 j 03:51	5°♂12'38	
direct	932 Jan 08 j 21:22	5°♄33'22		behind sun end	938 May 22 j 17:23	5°♂14'35	
				max. Earth dist.	938 May 22 j 03:52	5°♂12'38	20.18459 AU
conjunction	932 Apr 25 j 05:04	9°♄35'10	0°-21'-17	retrograde	938 Sep 10 j 06:04	9°♂27'54	
minimum elong	932 Apr 25 j 05:04	9°♄35'10	0°21'17	opposition	938 Nov 24 j 13:20	7°♂25'54	0°00'-59
max. Earth dist.	932 Apr 25 j 10:18	9°♄35'55	20.56105 AU	min. Earth dist.	938 Nov 24 j 19:56	7°♂25'12	18.15170 AU
retrograde	932 Aug 14 j 11:59	13°♄44'51		direct	939 Feb 07 j 04:58	5°♂24'25	
opposition	932 Oct 29 j 18:44	11°♄43'47	0°-21'-58	asc. node	939 Mar 04 j 05:44	5°♂41'01	
min. Earth dist.	932 Oct 29 j 15:29	11°♄44'08	18.53259 AU				
direct	933 Jan 12 j 06:08	9°♄44'43		conjunction	939 May 27 j 06:11	9°♂35'37	0°00'47
				minimum elong	939 May 27 j 06:11	9°♂35'37	0°00'47
conjunction	933 Apr 29 j 20:03	13°♄47'44	0°-18'-25	behind sun begin	939 May 26 j 23:25	9°♂34'38	
minimum elong	933 Apr 29 j 20:03	13°♄47'44	0°18'25	behind sun end	939 May 27 j 12:57	9°♂36'36	
max. Earth dist.	933 Apr 29 j 22:32	13°♄48'05	20.50360 AU	max. Earth dist.	939 May 26 j 20:40	9°♂34'13	20.11943 AU
	933 May 20 j 18:37	15°♄		retrograde	939 Sep 14 j 23:03	13°♂50'43	
retrograde	933 Aug 19 j 02:27	17°♄58'11		opposition	939 Nov 29 j 02:17	11°♂48'35	0°02'43
opposition	933 Nov 03 j 04:33	15°♄56'59	0°-18'-43	min. Earth dist.	939 Nov 29 j 10:16	11°♂47'43	18.08709 AU
min. Earth dist.	933 Nov 03 j 02:40	15°♄57'11	18.47356 AU	direct	940 Feb 11 j 19:25	9°♂46'42	
	933 Nov 26 j 18:11	15°♄					
direct	934 Jan 16 j 16:30	13°♄57'33		conjunction	940 May 31 j 02:45	13°♂59'24	0°04'11
	934 Mar 07 j 09:19	15°♄		minimum elong	940 May 31 j 02:44	13°♂59'24	0°04'12
				behind sun begin	940 May 30 j 20:03	13°♂58'26	
conjunction	934 May 04 j 11:54	18°♄01'50	0°-15'-25	behind sun end	940 May 31 j 09:24	14°♂00'22	
minimum elong	934 May 04 j 11:54	18°♄01'50	0°15'27	max. Earth dist.	940 May 30 j 16:41	13°♂57'55	20.05530 AU
behind sun begin	934 May 04 j 10:27	18°♄01'38		retrograde	940 Sep 18 j 16:35	18°♂15'16	
behind sun end	934 May 04 j 13:20	18°♄02'02		opposition	940 Dec 02 j 15:57	16°♂13'04	0°06'26
max. Earth dist.	934 May 04 j 12:47	18°♄01'58	20.44307 AU	min. Earth dist.	940 Dec 03 j 01:10	16°♂12'05	18.02362 AU
retrograde	934 Aug 23 j 16:21	22°♄13'02		direct	941 Feb 15 j 10:12	14°♂10'49	
opposition	934 Nov 07 j 15:01	20°♄11'41	0°-15'-21				
min. Earth dist.	934 Nov 07 j 15:22	20°♄11'39	18.41170 AU	conjunction	941 Jun 04 j 23:59	18°♂25'01	0°07'31
direct	935 Jan 21 j 03:09	18°♄11'53		minimum elong	941 Jun 04 j 23:59	18°♂25'01	0°07'30
				behind sun begin	941 Jun 04 j 17:50	18°♂24'08	
conjunction	935 May 09 j 04:13	22°♄17'26	0°-12'-20	behind sun end	941 Jun 05 j 06:08	18°♂25'55	
minimum elong	935 May 09 j 04:13	22°♄17'26	0°12'21	max. Earth dist.	941 Jun 04 j 11:08	18°♂23'07	19.99266 AU
behind sun begin	935 May 08 j 23:52	22°♄16'49		retrograde	941 Sep 23 j 10:46	22°♂41'42	
behind sun end	935 May 09 j 08:34	22°♄18'04		opposition	941 Dec 07 j 06:14	20°♂39'26	0°10'09
max. Earth dist.	935 May 09 j 02:21	22°♄17'11	20.38025 AU	min. Earth dist.	941 Dec 07 j 16:59	20°♂38'16	17.96191 AU
retrograde	935 Aug 28 j 07:12	26°♄29'26		direct	942 Feb 20 j 01:54	18°♂36'50	
opposition	935 Nov 12 j 01:52	24°♄27'53	0°-11'-52				
min. Earth dist.	935 Nov 12 j 03:34	24°♄27'42	18.34795 AU	conjunction	942 Jun 09 j 22:12	22°♂52'35	0°10'49
direct	936 Jan 25 j 14:46	22°♄27'40		minimum elong	942 Jun 09 j 22:13	22°♂52'35	0°10'50
				behind sun begin	942 Jun 09 j 17:07	22°♂51'51	
conjunction	936 May 12 j 21:37	26°♄34'35	0°-9'-10	behind sun end	942 Jun 10 j 03:18	22°♂53'20	
minimum elong	936 May 12 j 21:38	26°♄34'35	0°09'11	max. Earth dist.	942 Jun 09 j 08:58	22°♂50'37	19.93179 AU
behind sun begin	936 May 12 j 15:57	26°♄33'46		retrograde	942 Sep 28 j 06:26	27°♂10'02	
behind sun end	936 May 13 j 03:18	26°♄35'24		opposition	942 Dec 11 j 21:18	25°♂07'46	0°13'49
max. Earth dist.	936 May 12 j 18:33	26°♄34'09	20.31570 AU	min. Earth dist.	942 Dec 12 j 09:02	25°♂06'30	17.90194 AU
	936 Jul 19 j 09:50	0°♂		direct	943 Feb 24 j 18:20	23°♂04'51	
retrograde	936 Aug 31 j 22:14	0°♂47'19					
	936 Oct 15 j 01:30	30°♄		conjunction	943 Jun 14 j 20:56	27°♂22'08	0°14'06
opposition	936 Nov 15 j 13:07	28°♄45'37	0°-8'-18	minimum elong	943 Jun 14 j 20:56	27°♂22'08	0°14'06
min. Earth dist.	936 Nov 15 j 16:48	28°♄45'14	18.28283 AU	behind sun begin	943 Jun 14 j 17:48	27°♂21'40	
direct	937 Jan 29 j 02:42	26°♄44'59		behind sun end	943 Jun 15 j 00:03	27°♂22'35	
	937 May 02 j 12:00	0°♂		max. Earth dist.	943 Jun 14 j 04:59	27°♂19'44	19.87276 AU
					943 Jul 31 j 14:04	0°♂	
conjunction	937 May 17 j 15:43	0°♂53'17	0°-5'-56	retrograde	943 Oct 03 j 01:55	1°♂40'21	
minimum elong	937 May 17 j 15:43	0°♂53'17	0°05'56		943 Dec 08 j 01:14	30°♄	
behind sun begin	937 May 17 j 09:17	0°♂52'22		opposition	943 Dec 16 j 13:09	29°♂38'05	0°17'27

min. Earth dist.	943 Dec 17 j 02:44	29° $\Pi$ 36'37	17.84384 AU	opposition	952 Jan 21 j 21:11	6° $\Omega$ 39'04	0°41'23
direct	944 Feb 29 j 10:58	27° $\Pi$ 34'51		min. Earth dist.	952 Jan 22 j 19:37	6° $\Omega$ 36'37	17.45184 AU
	944 May 17 j 12:25	0° $\mathfrak{E}$		direct	952 Apr 06 j 12:44	4° $\Omega$ 33'17	
conjunction	944 Jun 18 j 20:51	1° $\mathfrak{E}$ 53'40	0°17'19	conjunction	952 Jul 27 j 15:06	9° $\Omega$ 01'49	0°38'04
minimum elong	944 Jun 18 j 20:51	1° $\mathfrak{E}$ 53'40	0°17'19	minimum elong	952 Jul 27 j 15:06	9° $\Omega$ 01'49	0°38'04
max. Earth dist.	944 Jun 18 j 04:21	1° $\mathfrak{E}$ 51'11	19.81537 AU	max. Earth dist.	952 Jul 26 j 12:46	8° $\Omega$ 57'43	19.43452 AU
retrograde	944 Oct 06 j 23:52	6° $\mathfrak{E}$ 12'37		retrograde	952 Nov 13 j 07:39	13° $\Omega$ 24'24	
opposition	944 Dec 20 j 05:36	4° $\mathfrak{E}$ 10'21	0°20'59	opposition	953 Jan 25 j 18:50	11° $\Omega$ 21'47	0°43'22
min. Earth dist.	944 Dec 20 j 20:09	4° $\mathfrak{E}$ 08'46	17.78719 AU	min. Earth dist.	953 Jan 26 j 16:32	11° $\Omega$ 19'24	17.41926 AU
direct	945 Mar 05 j 05:34	2° $\mathfrak{E}$ 06'49		direct	953 Apr 11 j 14:39	9° $\Omega$ 15'45	
conjunction	945 Jun 23 j 21:24	6° $\mathfrak{E}$ 27'07	0°20'27	conjunction	953 Aug 01 j 18:42	13° $\Omega$ 45'05	0°39'43
minimum elong	945 Jun 23 j 21:24	6° $\mathfrak{E}$ 27'07	0°20'27	minimum elong	953 Aug 01 j 18:42	13° $\Omega$ 45'05	0°39'42
max. Earth dist.	945 Jun 23 j 02:05	6° $\mathfrak{E}$ 24'11	19.75940 AU	max. Earth dist.	953 Jul 31 j 16:52	13° $\Omega$ 41'04	19.40461 AU
retrograde	945 Oct 11 j 19:57	10° $\mathfrak{E}$ 46'44			953 Aug 22 j 01:26	15° $\Omega$	
opposition	945 Dec 24 j 23:01	8° $\mathfrak{E}$ 44'28	0°24'26	retrograde	953 Nov 18 j 05:47	18° $\Omega$ 07'51	
min. Earth dist.	945 Dec 25 j 15:39	8° $\mathfrak{E}$ 42'39	17.73208 AU	opposition	954 Jan 30 j 17:20	16° $\Omega$ 05'15	0°45'03
direct	946 Mar 09 j 23:28	6° $\mathfrak{E}$ 40'36		min. Earth dist.	954 Jan 31 j 15:55	16° $\Omega$ 02'46	17.39233 AU
conjunction	946 Jun 28 j 22:34	11° $\mathfrak{E}$ 02'19	0°23'29		954 Feb 25 j 20:16	15° $\mathfrak{R}$ $\Omega$	
minimum elong	946 Jun 28 j 22:34	11° $\mathfrak{E}$ 02'19	0°23'28	direct	954 Apr 16 j 14:56	13° $\Omega$ 59'03	
max. Earth dist.	946 Jun 28 j 02:37	10° $\mathfrak{E}$ 59'17	19.70496 AU		954 Jun 04 j 07:11	15° $\Omega$	
retrograde	946 Oct 16 j 19:08	15° $\mathfrak{E}$ 22'34		conjunction	954 Aug 06 j 22:03	18° $\Omega$ 29'03	0°41'05
opposition	946 Dec 29 j 17:05	13° $\mathfrak{E}$ 20'16	0°27'44	minimum elong	954 Aug 06 j 22:03	18° $\Omega$ 29'03	0°41'05
min. Earth dist.	946 Dec 30 j 10:17	13° $\mathfrak{E}$ 18'24	17.67845 AU	max. Earth dist.	954 Aug 05 j 19:41	18° $\Omega$ 24'56	19.38071 AU
direct	947 Mar 14 j 20:15	11° $\mathfrak{E}$ 16'05		retrograde	954 Nov 23 j 06:13	22° $\Omega$ 51'57	
max. Earth dist.	947 Jul 03 j 02:02	15° $\mathfrak{E}$ 35'45	19.65220 AU	opposition	955 Feb 04 j 16:09	20° $\Omega$ 49'24	0°46'27
conjunction	947 Jul 04 j 00:20	15° $\mathfrak{E}$ 39'09	0°26'23	min. Earth dist.	955 Feb 05 j 13:41	20° $\Omega$ 47'02	17.37150 AU
minimum elong	947 Jul 04 j 00:20	15° $\mathfrak{E}$ 39'09	0°26'23	direct	955 Apr 21 j 17:25	18° $\Omega$ 43'05	
retrograde	947 Oct 21 j 15:20	19° $\mathfrak{E}$ 59'57		max. Earth dist.	955 Aug 11 j 00:34	23° $\Omega$ 09'45	19.36290 AU
opposition	948 Jan 03 j 11:50	17° $\mathfrak{E}$ 57'36	0°30'53	conjunction	955 Aug 12 j 01:43	23° $\Omega$ 13'41	0°42'12
min. Earth dist.	948 Jan 04 j 07:07	17° $\mathfrak{E}$ 55'30	17.62687 AU	minimum elong	955 Aug 12 j 01:43	23° $\Omega$ 13'41	0°42'12
direct	948 Mar 18 j 16:07	15° $\mathfrak{E}$ 53'04		retrograde	955 Nov 28 j 05:10	27° $\Omega$ 36'38	
max. Earth dist.	948 Jul 07 j 03:41	20° $\mathfrak{E}$ 13'53	19.60177 AU	opposition	956 Feb 09 j 15:27	25° $\Omega$ 34'11	0°47'32
conjunction	948 Jul 08 j 02:44	20° $\mathfrak{E}$ 17'25	0°29'07	min. Earth dist.	956 Feb 10 j 13:33	25° $\Omega$ 31'46	17.35672 AU
minimum elong	948 Jul 08 j 02:44	20° $\mathfrak{E}$ 17'25	0°29'07	direct	956 Apr 25 j 18:14	23° $\Omega$ 27'50	
retrograde	948 Oct 25 j 14:38	24° $\mathfrak{E}$ 38'42		max. Earth dist.	956 Aug 15 j 03:25	27° $\Omega$ 54'52	19.35117 AU
opposition	949 Jan 07 j 07:11	22° $\mathfrak{E}$ 36'18	0°33'51	conjunction	956 Aug 16 j 05:14	27° $\Omega$ 58'55	0°43'01
min. Earth dist.	949 Jan 08 j 02:39	22° $\mathfrak{E}$ 34'10	17.57769 AU	minimum elong	956 Aug 16 j 05:14	27° $\Omega$ 58'55	0°43'00
direct	949 Mar 23 j 14:57	20° $\mathfrak{E}$ 31'26			956 Sep 18 j 13:10	0° $\mathfrak{M}$	
max. Earth dist.	949 Jul 12 j 04:51	24° $\mathfrak{E}$ 53'12	19.55398 AU	retrograde	956 Dec 02 j 06:12	2° $\mathfrak{M}$ 21'53	
conjunction	949 Jul 13 j 05:27	24° $\mathfrak{E}$ 56'59	0°31'41	opposition	957 Feb 13 j 15:14	0° $\mathfrak{M}$ 19'34	0°48'17
minimum elong	949 Jul 13 j 05:27	24° $\mathfrak{E}$ 56'58	0°31'41	min. Earth dist.	957 Feb 14 j 12:26	0° $\mathfrak{M}$ 17'15	17.34788 AU
retrograde	949 Oct 30 j 11:04	29° $\mathfrak{E}$ 18'41			957 Feb 21 j 03:18	30° $\mathfrak{R}$ $\Omega$	
opposition	950 Jan 12 j 03:18	27° $\mathfrak{E}$ 16'12	0°36'36	direct	957 Apr 30 j 21:08	28° $\Omega$ 13'12	
min. Earth dist.	950 Jan 13 j 00:36	27° $\mathfrak{E}$ 13'52	17.53169 AU		957 Jul 05 j 10:52	0° $\mathfrak{M}$	
direct	950 Mar 28 j 12:44	25° $\mathfrak{E}$ 11'00		max. Earth dist.	957 Aug 20 j 08:32	2° $\mathfrak{M}$ 40'51	19.34504 AU
max. Earth dist.	950 Jul 17 j 07:15	29° $\mathfrak{E}$ 33'45	19.50983 AU	conjunction	957 Aug 21 j 08:41	2° $\mathfrak{M}$ 44'38	0°43'32
conjunction	950 Jul 18 j 08:28	29° $\mathfrak{E}$ 37'39	0°34'02	minimum elong	957 Aug 21 j 08:41	2° $\mathfrak{M}$ 44'38	0°43'33
minimum elong	950 Jul 18 j 08:28	29° $\mathfrak{E}$ 37'39	0°34'02	retrograde	957 Dec 07 j 05:54	7° $\mathfrak{M}$ 07'33	
retrograde	950 Jul 24 j 09:14	0° $\Omega$		opposition	958 Feb 18 j 15:36	5° $\mathfrak{M}$ 05'23	0°48'43
opposition	950 Nov 04 j 10:39	3° $\Omega$ 59'43		min. Earth dist.	958 Feb 19 j 12:57	5° $\mathfrak{M}$ 03'03	17.34439 AU
min. Earth dist.	951 Jan 16 j 23:52	1° $\Omega$ 57'10	0°39'07	direct	958 May 05 j 22:37	2° $\mathfrak{M}$ 59'05	
direct	951 Jan 17 j 20:49	1° $\Omega$ 54'53	17.48954 AU	max. Earth dist.	958 Aug 25 j 11:05	7° $\mathfrak{M}$ 26'48	19.34418 AU
max. Earth dist.	951 Mar 15 j 19:38	30° $\mathfrak{R}$ $\mathfrak{E}$		conjunction	958 Aug 26 j 11:50	7° $\mathfrak{M}$ 30'42	0°43'46
direct	951 Apr 02 j 13:29	29° $\mathfrak{E}$ 51'40		minimum elong	958 Aug 26 j 11:49	7° $\mathfrak{M}$ 30'42	0°43'46
	951 Apr 20 j 04:42	0° $\Omega$		retrograde	958 Dec 12 j 06:56	11° $\mathfrak{M}$ 53'29	
max. Earth dist.	951 Jul 22 j 09:58	4° $\Omega$ 15'20	19.46974 AU	opposition	959 Feb 23 j 16:10	9° $\mathfrak{M}$ 51'27	0°48'49
conjunction	951 Jul 23 j 11:40	4° $\Omega$ 19'18	0°36'10	min. Earth dist.	959 Feb 24 j 12:50	9° $\mathfrak{M}$ 49'12	17.34609 AU
minimum elong	951 Jul 23 j 11:40	4° $\Omega$ 19'18	0°36'10	direct	959 May 11 j 01:47	7° $\mathfrak{M}$ 45'12	
retrograde	951 Nov 09 j 07:43	8° $\Omega$ 41'39		conjunction	959 Aug 31 j 14:53	12° $\mathfrak{M}$ 16'53	0°43'42



max. Earth dist.	974 Nov 09 j 03:16	21° $\mathbb{M}$ 57'33	19.93451 AU	min. Earth dist.	981 Jun 06 j 03:44	20° $\mathbb{Z}$ 20'25	18.34304 AU
retrograde	975 Feb 24 j 05:15	26° $\mathbb{M}$ 10'13		direct	981 Aug 22 j 19:49	18° $\mathbb{Z}$ 19'03	
opposition	975 May 10 j 19:35	24° $\mathbb{M}$ 10'12	0°12'19				
min. Earth dist.	975 May 10 j 18:04	24° $\mathbb{M}$ 10'21	17.96577 AU	conjunction	981 Dec 08 j 17:13	22° $\mathbb{Z}$ 26'24	0°-10'-22
direct	975 Jul 27 j 02:39	22° $\mathbb{M}$ 08'02		minimum elong	981 Dec 08 j 17:13	22° $\mathbb{Z}$ 26'24	0°10'23
				behind sun begin	981 Dec 08 j 12:01	22° $\mathbb{Z}$ 25'39	
conjunction	975 Nov 13 j 16:54	26° $\mathbb{M}$ 24'18	0°09'27	behind sun end	981 Dec 08 j 22:25	22° $\mathbb{Z}$ 27'10	
minimum elong	975 Nov 13 j 16:55	26° $\mathbb{M}$ 24'18	0°09'28	max. Earth dist.	981 Dec 09 j 05:49	22° $\mathbb{Z}$ 28'17	20.37472 AU
behind sun begin	975 Nov 13 j 11:24	26° $\mathbb{M}$ 23'29		retrograde	982 Mar 26 j 11:14	26° $\mathbb{Z}$ 33'42	
behind sun end	975 Nov 13 j 22:25	26° $\mathbb{M}$ 25'07		opposition	982 Jun 11 j 08:53	24° $\mathbb{Z}$ 34'17	0°-13'-12
max. Earth dist.	975 Nov 13 j 18:50	26° $\mathbb{M}$ 24'35	19.99745 AU	min. Earth dist.	982 Jun 10 j 19:13	24° $\mathbb{Z}$ 35'40	18.40619 AU
	976 Jan 22 j 17:25	0° $\mathbb{Z}$		direct	982 Aug 27 j 10:02	22° $\mathbb{Z}$ 34'30	
retrograde	976 Feb 28 j 22:12	0° $\mathbb{Z}$ 36'21					
	976 Apr 07 j 08:06	30° $\mathbb{R}$ $\mathbb{M}$		conjunction	982 Dec 13 j 02:45	26° $\mathbb{Z}$ 40'30	0°-13'-29
opposition	976 May 14 j 16:43	28° $\mathbb{M}$ 36'27	0°08'38	minimum elong	982 Dec 13 j 02:45	26° $\mathbb{Z}$ 40'30	0°13'30
min. Earth dist.	976 May 14 j 13:02	28° $\mathbb{M}$ 36'50	18.02878 AU	behind sun begin	982 Dec 12 j 22:58	26° $\mathbb{Z}$ 39'57	
direct	976 Jul 30 j 23:39	26° $\mathbb{M}$ 34'38		behind sun end	982 Dec 13 j 06:32	26° $\mathbb{Z}$ 41'03	
	976 Nov 03 j 18:09	0° $\mathbb{Z}$		max. Earth dist.	982 Dec 13 j 17:55	26° $\mathbb{Z}$ 42'46	20.43762 AU
					983 Feb 15 j 16:41	0° $\mathbb{Z}$	
conjunction	976 Nov 17 j 07:10	0° $\mathbb{Z}$ 49'25	0°06'09	retrograde	983 Mar 30 j 23:47	0° $\mathbb{Z}$ 47'06	
minimum elong	976 Nov 17 j 07:10	0° $\mathbb{Z}$ 49'25	0°06'09		983 May 15 j 01:49	30° $\mathbb{R}$ $\mathbb{Z}$	
behind sun begin	976 Nov 17 j 00:56	0° $\mathbb{Z}$ 48'30		min. Earth dist.	983 Jun 15 j 09:24	28° $\mathbb{Z}$ 49'23	18.46870 AU
behind sun end	976 Nov 17 j 13:24	0° $\mathbb{Z}$ 50'21		opposition	983 Jun 16 j 00:58	28° $\mathbb{Z}$ 47'49	0°-16'-36
max. Earth dist.	976 Nov 17 j 11:51	0° $\mathbb{Z}$ 50'07	20.06040 AU	direct	983 Sep 01 j 01:23	26° $\mathbb{Z}$ 48'25	
retrograde	977 Mar 04 j 13:47	5° $\mathbb{Z}$ 00'38			983 Dec 02 j 13:13	0° $\mathbb{Z}$	
opposition	977 May 19 j 13:17	3° $\mathbb{Z}$ 00'50	0°04'55				
min. Earth dist.	977 May 19 j 08:21	3° $\mathbb{Z}$ 01'21	18.09160 AU	conjunction	983 Dec 17 j 11:32	0° $\mathbb{Z}$ 53'06	0°-16'-30
direct	977 Aug 04 j 20:36	0° $\mathbb{Z}$ 59'23		minimum elong	983 Dec 17 j 11:32	0° $\mathbb{Z}$ 53'06	0°16'31
				max. Earth dist.	983 Dec 18 j 03:24	0° $\mathbb{Z}$ 55'27	20.49970 AU
conjunction	977 Nov 21 j 20:24	5° $\mathbb{Z}$ 12'39	0°02'48	retrograde	984 Apr 03 j 12:04	4° $\mathbb{Z}$ 59'04	
minimum elong	977 Nov 21 j 20:25	5° $\mathbb{Z}$ 12'39	0°02'50	opposition	984 Jun 19 j 16:42	2° $\mathbb{Z}$ 59'54	0°-19'-54
behind sun begin	977 Nov 21 j 13:53	5° $\mathbb{Z}$ 11'41		min. Earth dist.	984 Jun 19 j 00:08	3° $\mathbb{Z}$ 01'34	18.53030 AU
behind sun end	977 Nov 22 j 02:57	5° $\mathbb{Z}$ 13'37		direct	984 Sep 04 j 13:27	1° $\mathbb{Z}$ 00'53	
max. Earth dist.	977 Nov 22 j 01:43	5° $\mathbb{Z}$ 13'25	20.12320 AU				
retrograde	978 Mar 09 j 05:08	9° $\mathbb{Z}$ 23'02		conjunction	984 Dec 20 j 19:49	5° $\mathbb{Z}$ 04'17	0°-19'-25
opposition	978 May 24 j 08:55	7° $\mathbb{Z}$ 23'18	0°01'12	minimum elong	984 Dec 20 j 19:49	5° $\mathbb{Z}$ 04'17	0°19'26
min. Earth dist.	978 May 24 j 02:07	7° $\mathbb{Z}$ 23'59	18.15442 AU	max. Earth dist.	984 Dec 21 j 14:00	5° $\mathbb{Z}$ 06'59	20.56047 AU
direct	978 Aug 09 j 15:28	5° $\mathbb{Z}$ 22'09		retrograde	985 Apr 08 j 00:33	9° $\mathbb{Z}$ 09'40	
desc. node	978 Sep 21 j 11:18	6° $\mathbb{Z}$ 08'30		opposition	985 Jun 24 j 07:42	7° $\mathbb{Z}$ 10'36	0°-23'-4
				min. Earth dist.	985 Jun 23 j 13:22	7° $\mathbb{Z}$ 12'27	18.59008 AU
conjunction	978 Nov 26 j 08:56	9° $\mathbb{Z}$ 33'55	0°00'-36	direct	985 Sep 09 j 03:52	5° $\mathbb{Z}$ 11'58	
minimum elong	978 Nov 26 j 08:56	9° $\mathbb{Z}$ 33'55	0°00'38				
behind sun begin	978 Nov 26 j 02:24	9° $\mathbb{Z}$ 32'57		conjunction	985 Dec 25 j 03:37	9° $\mathbb{Z}$ 14'09	0°-22'-14
behind sun end	978 Nov 26 j 15:27	9° $\mathbb{Z}$ 34'53		minimum elong	985 Dec 25 j 03:37	9° $\mathbb{Z}$ 14'09	0°22'15
max. Earth dist.	978 Nov 26 j 17:02	9° $\mathbb{Z}$ 35'07	20.18592 AU	max. Earth dist.	985 Dec 25 j 22:13	9° $\mathbb{Z}$ 16'54	20.61911 AU
retrograde	979 Mar 13 j 19:01	13° $\mathbb{Z}$ 43'28		retrograde	986 Apr 12 j 11:54	13° $\mathbb{Z}$ 18'58	
opposition	979 May 29 j 03:58	11° $\mathbb{Z}$ 43'48	0°-2'-28	opposition	986 Jun 28 j 22:02	11° $\mathbb{Z}$ 20'01	0°-26'-6
min. Earth dist.	979 May 29 j 19:34	11° $\mathbb{Z}$ 44'40	18.21707 AU	min. Earth dist.	986 Jun 28 j 03:22	11° $\mathbb{Z}$ 21'54	18.64758 AU
direct	979 Aug 14 j 10:23	9° $\mathbb{Z}$ 42'59		direct	986 Sep 13 j 14:29	9° $\mathbb{Z}$ 21'43	
conjunction	979 Nov 30 j 20:21	13° $\mathbb{Z}$ 53'14	0°-3'-57	conjunction	986 Dec 29 j 11:09	13° $\mathbb{Z}$ 22'46	0°-24'-55
minimum elong	979 Nov 30 j 20:22	13° $\mathbb{Z}$ 53'14	0°03'58	minimum elong	986 Dec 29 j 11:08	13° $\mathbb{Z}$ 22'46	0°24'55
behind sun begin	979 Nov 30 j 13:54	13° $\mathbb{Z}$ 52'17		max. Earth dist.	986 Dec 30 j 07:30	13° $\mathbb{Z}$ 25'46	20.67508 AU
behind sun end	979 Dec 01 j 02:50	13° $\mathbb{Z}$ 54'11		retrograde	987 Apr 16 j 23:40	17° $\mathbb{Z}$ 27'03	
max. Earth dist.	979 Dec 01 j 05:16	13° $\mathbb{Z}$ 54'34	20.24863 AU	opposition	987 Jul 03 j 11:46	15° $\mathbb{Z}$ 28'11	0°-29'00
retrograde	980 Mar 17 j 09:10	18° $\mathbb{Z}$ 02'01		min. Earth dist.	987 Jul 02 j 15:34	15° $\mathbb{Z}$ 30'13	18.70188 AU
opposition	980 Jun 01 j 22:18	16° $\mathbb{Z}$ 02'24	0°-6'-7	direct	987 Sep 18 j 03:51	13° $\mathbb{Z}$ 30'12	
min. Earth dist.	980 Jun 01 j 12:05	16° $\mathbb{Z}$ 03'26	18.27998 AU				
direct	980 Aug 18 j 03:07	14° $\mathbb{Z}$ 01'54		conjunction	988 Jan 02 j 18:02	17° $\mathbb{Z}$ 30'09	0°-27'-27
				minimum elong	988 Jan 02 j 18:02	17° $\mathbb{Z}$ 30'09	0°27'29
conjunction	980 Dec 04 j 07:16	18° $\mathbb{Z}$ 10'42	0°-7'-12	max. Earth dist.	988 Jan 03 j 14:29	17° $\mathbb{Z}$ 33'09	20.72752 AU
minimum elong	980 Dec 04 j 07:16	18° $\mathbb{Z}$ 10'42	0°07'13	retrograde	988 Apr 20 j 10:23	21° $\mathbb{Z}$ 33'58	
behind sun begin	980 Dec 04 j 01:14	18° $\mathbb{Z}$ 09'49		min. Earth dist.	988 Jul 06 j 05:00	19° $\mathbb{Z}$ 37'10	18.75253 AU
behind sun end	980 Dec 04 j 13:17	18° $\mathbb{Z}$ 11'35		opposition	988 Jul 07 j 01:09	19° $\mathbb{Z}$ 35'09	0°-31'-44
max. Earth dist.	980 Dec 04 j 19:02	18° $\mathbb{Z}$ 12'28	20.31162 AU	direct	988 Sep 21 j 13:39	17° $\mathbb{Z}$ 37'27	
retrograde	981 Mar 21 j 22:04	22° $\mathbb{Z}$ 18'42					
opposition	981 Jun 06 j 15:56	20° $\mathbb{Z}$ 19'11	0°-9'-42	conjunction	989 Jan 06 j 00:50	21° $\mathbb{Z}$ 36'21	0°-29'-51

minimum elong	989 Jan 06 j 00:50	21°☾36'21	0°29'52	direct	996 Oct 24 j 10:18	19°☾55'40	
max. Earth dist.	989 Jan 06 j 22:36	21°☾39'32	20.77606 AU				
retrograde	989 Apr 24 j 21:02	25°☾39'42		conjunction	997 Feb 06 j 20:17	23°☾48'54	0°-42'-28
opposition	989 Jul 11 j 13:42	23°☾40'55	0°-34'-17	minimum elong	997 Feb 06 j 20:17	23°☾48'54	0°42'29
min. Earth dist.	989 Jul 10 j 16:11	23°☾43'04	18.79889 AU	max. Earth dist.	997 Feb 07 j 21:27	23°☾52'31	21.01804 AU
direct	989 Sep 26 j 01:51	21°☾43'27		retrograde	997 May 27 j 21:14	27°☾50'23	
				opposition	997 Aug 13 j 22:43	25°☾51'17	0°-47'-21
conjunction	990 Jan 10 j 07:08	25°☾41'22	0°-32'-5	min. Earth dist.	997 Aug 12 j 22:37	25°☾53'42	19.02609 AU
minimum elong	990 Jan 10 j 07:08	25°☾41'22	0°32'05	direct	997 Oct 28 j 17:35	23°☾54'52	
max. Earth dist.	990 Jan 11 j 04:41	25°☾44'31	20.82011 AU				
retrograde	990 Apr 29 j 06:56	29°☾44'18		conjunction	998 Feb 11 j 01:20	27°☾47'49	0°-43'-10
min. Earth dist.	990 Jul 15 j 04:45	27°☾47'36	18.84074 AU	minimum elong	998 Feb 11 j 01:20	27°☾47'49	0°43'11
opposition	990 Jul 16 j 01:49	27°☾45'30	0°-36'-39	max. Earth dist.	998 Feb 12 j 01:59	27°☾51'22	21.03226 AU
direct	990 Sep 30 j 10:39	25°☾48'13			998 Mar 23 j 14:36	0°☾	
				retrograde	998 Jun 01 j 04:15	1°☾49'21	
conjunction	991 Jan 14 j 13:11	29°☾45'12	0°-34'-8		998 Aug 14 j 05:38	30°☾	
minimum elong	991 Jan 14 j 13:11	29°☾45'12	0°34'10	min. Earth dist.	998 Aug 17 j 08:14	29°☾52'33	19.03839 AU
max. Earth dist.	991 Jan 15 j 11:48	29°☾48'30	20.85967 AU	opposition	998 Aug 18 j 07:07	29°☾50'15	0°-47'-59
	991 Jan 18 j 18:33	0°☾		direct	998 Nov 01 j 22:05	27°☾53'56	
retrograde	991 May 03 j 16:30	3°☾47'44			999 Jan 14 j 04:13	0°☾	
opposition	991 Jul 20 j 13:07	1°☾48'54	0°-38'-49				
min. Earth dist.	991 Jul 19 j 14:45	1°☾51'09	18.87805 AU	conjunction	999 Feb 15 j 06:33	1°☾46'41	0°-43'-39
	991 Sep 16 j 16:36	30°☾		minimum elong	999 Feb 15 j 06:33	1°☾46'41	0°43'39
direct	991 Oct 04 j 21:20	29°☾51'46		max. Earth dist.	999 Feb 16 j 07:34	1°☾50'17	21.04254 AU
	991 Oct 22 j 19:17	0°☾		retrograde	999 Jun 05 j 13:55	5°☾48'19	
				opposition	999 Aug 22 j 15:08	3°☾49'13	0°-48'-24
conjunction	992 Jan 18 j 18:47	3°☾47'54	0°-36'-1	min. Earth dist.	999 Aug 21 j 15:32	3°☾51'34	19.04644 AU
minimum elong	992 Jan 18 j 18:46	3°☾47'54	0°36'01	direct	999 Nov 06 j 05:10	1°☾52'59	
max. Earth dist.	992 Jan 19 j 17:17	3°☾51'10	20.89487 AU				
retrograde	992 May 07 j 01:12	7°☾50'06		conjunction	1000 Feb 19 j 11:59	5°☾45'37	0°-43'-55
min. Earth dist.	992 Jul 23 j 02:12	5°☾53'24	18.91139 AU	minimum elong	1000 Feb 19 j 11:59	5°☾45'37	0°43'57
opposition	992 Jul 24 j 00:05	5°☾51'12	0°-40'-47	max. Earth dist.	1000 Feb 20 j 12:08	5°☾49'05	21.04830 AU
direct	992 Oct 08 j 05:11	3°☾54'12		retrograde	1000 Jun 08 j 21:18	9°☾47'25	
				opposition	1000 Aug 25 j 23:07	7°☾48'17	0°-48'-35
conjunction	993 Jan 22 j 00:08	7°☾49'33	0°-37'-42	min. Earth dist.	1000 Aug 25 j 01:08	7°☾50'29	19.04990 AU
minimum elong	993 Jan 22 j 00:07	7°☾49'33	0°37'44	direct	1000 Nov 09 j 09:26	5°☾52'06	
max. Earth dist.	993 Jan 22 j 23:49	7°☾52'59	20.92632 AU				
retrograde	993 May 11 j 10:44	11°☾51'28		conjunction	1001 Feb 22 j 17:49	9°☾44'43	0°-43'-59
min. Earth dist.	993 Jul 27 j 11:02	9°☾54'50	18.94101 AU	minimum elong	1001 Feb 22 j 17:49	9°☾44'43	0°43'59
opposition	993 Jul 28 j 10:18	9°☾52'31	0°-42'-32	max. Earth dist.	1001 Feb 23 j 17:49	9°☾48'09	21.04929 AU
direct	993 Oct 12 j 14:10	7°☾55'37		retrograde	1001 Jun 13 j 06:57	13°☾46'42	
				min. Earth dist.	1001 Aug 29 j 08:33	11°☾49'45	19.04818 AU
conjunction	994 Jan 26 j 05:18	11°☾50'17	0°-39'-11	opposition	1001 Aug 30 j 06:47	11°☾47'31	0°-48'-32
minimum elong	994 Jan 26 j 05:18	11°☾50'17	0°39'12	direct	1001 Nov 13 j 16:08	9°☾51'21	
max. Earth dist.	994 Jan 27 j 04:52	11°☾53'42	20.95414 AU				
	994 Mar 30 j 00:42	15°☾		conjunction	1002 Feb 26 j 23:55	13°☾44'00	0°-43'-50
retrograde	994 May 15 j 18:20	15°☾52'00		minimum elong	1002 Feb 26 j 23:55	13°☾44'00	0°43'51
	994 Jul 03 j 02:55	15°☾		max. Earth dist.	1002 Feb 27 j 22:33	13°☾47'14	21.04477 AU
opposition	994 Aug 01 j 19:59	13°☾52'59	0°-44'-4	retrograde	1002 Jun 17 j 14:34	17°☾46'13	
min. Earth dist.	994 Jul 31 j 21:24	13°☾55'15	18.96729 AU	opposition	1002 Sep 03 j 14:22	15°☾46'57	0°-48'-15
direct	994 Oct 16 j 20:56	11°☾56'12		min. Earth dist.	1002 Sep 02 j 18:05	15°☾48'59	19.04091 AU
	995 Jan 15 j 19:42	15°☾		direct	1002 Nov 17 j 20:29	13°☾50'44	
conjunction	995 Jan 30 j 10:25	15°☾50'19	0°-40'-29	conjunction	1003 Mar 03 j 06:23	17°☾43'30	0°-43'-28
minimum elong	995 Jan 30 j 10:24	15°☾50'19	0°40'30	minimum elong	1003 Mar 03 j 06:23	17°☾43'30	0°43'28
max. Earth dist.	995 Jan 31 j 10:59	15°☾53'52	20.97878 AU	max. Earth dist.	1003 Mar 04 j 04:29	17°☾46'40	21.03479 AU
retrograde	995 May 20 j 04:12	19°☾51'52		retrograde	1003 Jun 22 j 00:01	21°☾45'59	
min. Earth dist.	995 Aug 05 j 05:18	17°☾55'13	18.99026 AU	opposition	1003 Sep 07 j 21:48	19°☾46'35	0°-47'-43
opposition	995 Aug 06 j 05:13	17°☾52'49	0°-45'-23	min. Earth dist.	1003 Sep 07 j 01:25	19°☾48'38	19.02807 AU
direct	995 Oct 21 j 04:43	15°☾56'10		direct	1003 Nov 22 j 03:08	17°☾50'16	
conjunction	996 Feb 03 j 15:12	19°☾49'47	0°-41'-35	conjunction	1004 Mar 06 j 12:56	21°☾43'12	0°-42'-53
minimum elong	996 Feb 03 j 15:12	19°☾49'47	0°41'35	minimum elong	1004 Mar 06 j 12:56	21°☾43'12	0°42'54
max. Earth dist.	996 Feb 04 j 15:37	19°☾53'18	21.00006 AU	max. Earth dist.	1004 Mar 07 j 09:39	21°☾46'10	21.01927 AU
retrograde	996 May 23 j 11:19	23°☾51'17		retrograde	1004 Jun 25 j 07:49	25°☾45'58	
opposition	996 Aug 09 j 14:18	21°☾52'12	0°-46'-28	min. Earth dist.	1004 Sep 10 j 10:54	23°☾48'16	19.00996 AU
min. Earth dist.	996 Aug 08 j 15:12	21°☾54'31	19.00994 AU	opposition	1004 Sep 11 j 05:16	23°☾46'24	0°-46'-58

direct	1004 Nov 25 j 07:24	21° <del>✕</del> 49'57		direct	1012 Dec 27 j 06:25	24° <del>Υ</del> 07'06	
conjunction	1005 Mar 10 j 20:02	25° <del>✕</del> 43'08	0°-42'-5	conjunction	1013 Apr 12 j 21:58	28° <del>Υ</del> 05'37	0°-28'-43
minimum elong	1005 Mar 10 j 20:02	25° <del>✕</del> 43'08	0°42'06	minimum elong	1013 Apr 12 j 21:58	28° <del>Υ</del> 05'37	0°28'43
max. Earth dist.	1005 Mar 11 j 16:10	25° <del>✕</del> 46'01	20.99884 AU	max. Earth dist.	1013 Apr 13 j 08:26	28° <del>Υ</del> 07'07	20.71072 AU
retrograde	1005 Jun 29 j 17:31	29° <del>✕</del> 46'13			1013 May 17 j 04:26	0° <del>♄</del>	
opposition	1005 Sep 15 j 12:15	27° <del>✕</del> 46'28	0°-45'-58	retrograde	1013 Aug 02 j 05:28	2° <del>♄</del> 13'08	
min. Earth dist.	1005 Sep 14 j 17:56	27° <del>✕</del> 48'20	18.98717 AU	opposition	1013 Oct 18 j 00:13	0° <del>♄</del> 12'22	0°-30'-24
direct	1005 Nov 29 j 14:06	25° <del>✕</del> 49'49		min. Earth dist.	1013 Oct 17 j 15:16	0° <del>♄</del> 13'18	18.68650 AU
					1013 Oct 22 j 23:39	30° <del>♁</del> <del>Υ</del>	
conjunction	1006 Mar 15 j 03:24	29° <del>✕</del> 43'22	0°-41'-5	direct	1013 Dec 31 j 14:26	28° <del>Υ</del> 14'07	
minimum elong	1006 Mar 15 j 03:24	29° <del>✕</del> 43'22	0°41'06		1014 Mar 07 j 17:35	0° <del>♄</del>	
max. Earth dist.	1006 Mar 15 j 22:11	29° <del>✕</del> 46'03	20.97388 AU				
	1006 Mar 19 j 23:49	0° <del>♁</del>		conjunction	1014 Apr 17 j 10:27	2° <del>♄</del> 13'43	0°-26'-15
retrograde	1006 Jul 04 j 01:24	3° <del>♁</del> 46'48		minimum elong	1014 Apr 17 j 10:27	2° <del>♄</del> 13'43	0°26'16
opposition	1006 Sep 19 j 19:28	1° <del>♁</del> 46'53	0°-44'-45	max. Earth dist.	1014 Apr 17 j 19:06	2° <del>♄</del> 14'57	20.66147 AU
min. Earth dist.	1006 Sep 19 j 03:06	1° <del>♁</del> 48'33	18.96024 AU	retrograde	1014 Aug 06 j 17:05	6° <del>♄</del> 22'00	
	1006 Nov 14 j 00:22	30° <del>♁</del> <del>✕</del>		opposition	1014 Oct 22 j 09:02	4° <del>♄</del> 21'09	0°-27'-35
direct	1006 Dec 03 j 18:18	29° <del>✕</del> 50'02		min. Earth dist.	1014 Oct 22 j 02:34	4° <del>♄</del> 21'49	18.63557 AU
	1006 Dec 23 j 08:06	0° <del>♁</del>		direct	1015 Jan 04 j 21:11	2° <del>♄</del> 22'39	
conjunction	1007 Mar 19 j 11:04	3° <del>♁</del> 43'59	0°-39'-53	conjunction	1015 Apr 21 j 23:37	6° <del>♄</del> 23'22	0°-23'-38
minimum elong	1007 Mar 19 j 11:04	3° <del>♁</del> 43'59	0°39'55	minimum elong	1015 Apr 21 j 23:37	6° <del>♄</del> 23'22	0°23'38
max. Earth dist.	1007 Mar 20 j 05:18	3° <del>♁</del> 46'36	20.94520 AU	max. Earth dist.	1015 Apr 22 j 06:13	6° <del>♄</del> 24'19	20.60893 AU
retrograde	1007 Jul 08 j 11:48	7° <del>♁</del> 47'52		retrograde	1015 Aug 11 j 08:02	10° <del>♄</del> 32'27	
min. Earth dist.	1007 Sep 23 j 10:07	5° <del>♁</del> 49'26	18.92978 AU	opposition	1015 Oct 26 j 18:12	8° <del>♄</del> 31'28	0°-24'-37
opposition	1007 Sep 24 j 02:31	5° <del>♁</del> 47'45	0°-43'-19	min. Earth dist.	1015 Oct 26 j 12:42	8° <del>♄</del> 32'03	18.58122 AU
direct	1007 Dec 08 j 00:58	3° <del>♁</del> 50'43		direct	1016 Jan 09 j 06:45	6° <del>♄</del> 32'41	
conjunction	1008 Mar 22 j 19:17	7° <del>♁</del> 45'11	0°-38'-29	conjunction	1016 Apr 25 j 13:50	10° <del>♄</del> 34'35	0°-20'-52
minimum elong	1008 Mar 22 j 19:17	7° <del>♁</del> 45'11	0°38'29	minimum elong	1016 Apr 25 j 13:50	10° <del>♄</del> 34'35	0°20'53
max. Earth dist.	1008 Mar 23 j 12:13	7° <del>♁</del> 47'36	20.91310 AU	max. Earth dist.	1016 Apr 25 j 18:30	10° <del>♄</del> 35'15	20.55277 AU
retrograde	1008 Jul 11 j 20:22	11° <del>♁</del> 49'32		retrograde	1016 Aug 14 j 20:27	14° <del>♄</del> 44'25	
opposition	1008 Sep 27 j 09:43	9° <del>♁</del> 49'16	0°-41'-40	opposition	1016 Oct 30 j 03:46	12° <del>♄</del> 43'19	0°-21'-29
min. Earth dist.	1008 Sep 26 j 19:17	9° <del>♁</del> 50'44	18.89618 AU	min. Earth dist.	1016 Oct 30 j 00:49	12° <del>♄</del> 43'37	18.52337 AU
direct	1008 Dec 11 j 05:36	7° <del>♁</del> 52'01		direct	1017 Jan 12 j 14:36	10° <del>♄</del> 44'12	
conjunction	1009 Mar 27 j 04:09	11° <del>♁</del> 47'06	0°-36'-53	conjunction	1017 Apr 30 j 04:49	14° <del>♄</del> 47'19	0°-17'-58
minimum elong	1009 Mar 27 j 04:10	11° <del>♁</del> 47'06	0°36'55	minimum elong	1017 Apr 30 j 04:49	14° <del>♄</del> 47'19	0°18'00
max. Earth dist.	1009 Mar 27 j 20:15	11° <del>♁</del> 49'25	20.87813 AU	max. Earth dist.	1017 Apr 30 j 07:02	14° <del>♄</del> 47'38	20.49351 AU
retrograde	1009 Jul 16 j 07:34	15° <del>♁</del> 51'59			1017 May 03 j 19:43	15° <del>♄</del>	
opposition	1009 Oct 01 j 16:54	13° <del>♁</del> 51'34	0°-39'-48	retrograde	1017 Aug 19 j 12:06	18° <del>♄</del> 57'56	
min. Earth dist.	1009 Oct 01 j 02:35	13° <del>♁</del> 53'03	18.85972 AU	opposition	1017 Nov 03 j 13:43	16° <del>♄</del> 56'39	0°-18'-13
direct	1009 Dec 15 j 12:13	11° <del>♁</del> 54'07		min. Earth dist.	1017 Nov 03 j 11:54	16° <del>♄</del> 56'51	18.46263 AU
					1018 Jan 06 j 18:11	15° <del>♁</del> <del>♄</del>	
conjunction	1010 Mar 31 j 13:29	15° <del>♁</del> 49'56	0°-35'-7	direct	1018 Jan 17 j 01:55	14° <del>♄</del> 57'10	
minimum elong	1010 Mar 31 j 13:29	15° <del>♁</del> 49'56	0°35'07		1018 Jan 27 j 10:07	15° <del>♄</del>	
max. Earth dist.	1010 Apr 01 j 04:10	15° <del>♁</del> 52'02	20.84023 AU				
retrograde	1010 Jul 20 j 17:06	19° <del>♁</del> 55'24		conjunction	1018 May 04 j 20:28	19° <del>♄</del> 01'33	0°-14'-58
opposition	1010 Oct 06 j 00:21	17° <del>♁</del> 54'52	0°-37'-45	minimum elong	1018 May 04 j 20:28	19° <del>♄</del> 01'33	0°14'59
min. Earth dist.	1010 Oct 05 j 12:06	17° <del>♁</del> 56'08	18.82047 AU	behind sun begin	1018 May 04 j 18:16	19° <del>♄</del> 01'14	
direct	1010 Dec 19 j 17:28	15° <del>♁</del> 57'14		behind sun end	1018 May 04 j 22:40	19° <del>♄</del> 01'52	
				max. Earth dist.	1018 May 04 j 21:05	19° <del>♄</del> 01'38	20.43146 AU
conjunction	1011 Apr 04 j 23:34	19° <del>♁</del> 53'51	0°-33'-9	retrograde	1018 Aug 24 j 00:59	23° <del>♄</del> 12'56	
minimum elong	1011 Apr 04 j 23:34	19° <del>♁</del> 53'51	0°33'10	opposition	1018 Nov 08 j 00:09	21° <del>♄</del> 11'29	0°-14'-50
max. Earth dist.	1011 Apr 05 j 13:08	19° <del>♁</del> 55'48	20.79983 AU	min. Earth dist.	1018 Nov 08 j 00:38	21° <del>♄</del> 11'26	18.39952 AU
retrograde	1011 Jul 25 j 05:14	23° <del>♁</del> 59'57		direct	1019 Jan 21 j 11:08	19° <del>♄</del> 11'36	
opposition	1011 Oct 10 j 08:00	21° <del>♁</del> 59'20	0°-35'-29				
min. Earth dist.	1011 Oct 09 j 20:01	22° <del>♁</del> 00'34	18.77868 AU	conjunction	1019 May 09 j 12:54	23° <del>♄</del> 17'18	0°-11'-52
direct	1011 Dec 24 j 00:27	20° <del>♁</del> 01'30		minimum elong	1019 May 09 j 12:54	23° <del>♄</del> 17'18	0°11'54
				behind sun begin	1019 May 09 j 08:19	23° <del>♄</del> 16'38	
conjunction	1012 Apr 08 j 10:16	23° <del>♁</del> 59'01	0°-31'-1	behind sun end	1019 May 09 j 17:29	23° <del>♄</del> 17'57	
minimum elong	1012 Apr 08 j 10:16	23° <del>♁</del> 59'01	0°31'02	max. Earth dist.	1019 May 09 j 11:06	23° <del>♄</del> 17'02	20.36767 AU
max. Earth dist.	1012 Apr 08 j 22:21	24° <del>♁</del> 00'45	20.75666 AU	retrograde	1019 Aug 28 j 17:08	27° <del>♄</del> 29'27	
retrograde	1012 Jul 28 j 15:57	28° <del>♁</del> 05'49		opposition	1019 Nov 12 j 10:54	25° <del>♄</del> 27'49	0°-11'-21
opposition	1012 Oct 13 j 16:04	26° <del>♁</del> 05'07	0°-33'-2	min. Earth dist.	1019 Nov 12 j 12:31	25° <del>♄</del> 27'39	18.33508 AU
min. Earth dist.	1012 Oct 13 j 06:22	26° <del>♁</del> 06'08	18.73407 AU	direct	1020 Jan 25 j 23:53	23° <del>♄</del> 27'31	



conjunction	1020 May 13 j 06:13	27°♄34'35	0°-8'-42	behind sun end	1026 Jun 10 j 11:53	23°♄54'51	
minimum elong	1020 May 13 j 06:12	27°♄34'35	0°08'42	max. Earth dist.	1026 Jun 09 j 18:11	23°♄52'13	19.92284 AU
behind sun begin	1020 May 13 j 00:23	27°♄33'45		retrograde	1026 Sep 28 j 15:57	28°♄11'48	
behind sun end	1020 May 13 j 12:02	27°♄35'25		opposition	1026 Dec 12 j 07:05	26°♄09'30	0°14'20
max. Earth dist.	1020 May 13 j 03:10	27°♄34'09	20.30266 AU	min. Earth dist.	1026 Dec 12 j 18:42	26°♄08'15	17.89324 AU
	1020 Jun 25 j 23:38	0°♄		direct	1027 Feb 25 j 03:25	24°♄06'36	
retrograde	1020 Sep 01 j 06:56	1°♄47'31					
	1020 Nov 10 j 07:33	30°♄		conjunction	1027 Jun 15 j 06:04	28°♄24'01	0°14'33
opposition	1020 Nov 15 j 22:17	29°♄45'43	0°-7'-47	minimum elong	1027 Jun 15 j 06:04	28°♄24'01	0°14'33
min. Earth dist.	1020 Nov 16 j 01:56	29°♄45'20	18.26974 AU	behind sun begin	1027 Jun 15 j 03:24	28°♄23'38	
direct	1021 Jan 29 j 11:01	27°♄45'00		behind sun end	1027 Jun 15 j 08:44	28°♄24'25	
	1021 Apr 14 j 20:05	0°♄		max. Earth dist.	1027 Jun 14 j 14:21	28°♄21'40	19.86420 AU
					1027 Jul 12 j 08:28	0°♄	
conjunction	1021 May 18 j 00:15	1°♄53'27	0°-5'-27	retrograde	1027 Oct 03 j 12:03	2°♄42'27	
minimum elong	1021 May 18 j 00:15	1°♄53'27	0°05'28	opposition	1027 Dec 16 j 22:58	0°♄40'09	0°17'57
behind sun begin	1021 May 17 j 17:44	1°♄52'30		min. Earth dist.	1027 Dec 17 j 12:23	0°♄38'42	17.83534 AU
behind sun end	1021 May 18 j 06:45	1°♄54'23			1028 Jan 01 j 16:50	30°♄	
max. Earth dist.	1021 May 17 j 18:41	1°♄52'39	20.23726 AU	direct	1028 Feb 29 j 20:40	28°♄36'54	
retrograde	1021 Sep 05 j 23:28	6°♄07'10			1028 Apr 27 j 06:47	0°♄	
opposition	1021 Nov 20 j 10:03	4°♄05'13	0°-4'-9				
min. Earth dist.	1021 Nov 20 j 14:48	4°♄04'42	18.20441 AU	conjunction	1028 Jun 19 j 06:13	2°♄55'51	0°17'46
direct	1022 Feb 03 j 00:39	2°♄04'04		minimum elong	1028 Jun 19 j 06:13	2°♄55'51	0°17'46
				max. Earth dist.	1028 Jun 18 j 13:50	2°♄53'22	19.80677 AU
conjunction	1022 May 22 j 19:09	6°♄13'58	0°-2'-9	retrograde	1028 Oct 07 j 09:04	7°♄14'58	
minimum elong	1022 May 22 j 19:10	6°♄13'58	0°02'10	opposition	1028 Dec 20 j 15:43	5°♄12'39	0°21'29
behind sun begin	1022 May 22 j 12:24	6°♄12'59		min. Earth dist.	1028 Dec 21 j 06:15	5°♄11'05	17.77848 AU
behind sun end	1022 May 23 j 01:56	6°♄14'56		direct	1029 Mar 05 j 15:11	3°♄09'05	
max. Earth dist.	1022 May 22 j 12:45	6°♄13'03	20.17201 AU	max. Earth dist.	1029 Jun 23 j 11:32	7°♄26'33	19.75049 AU
retrograde	1022 Sep 10 j 14:57	10°♄28'28					
opposition	1022 Nov 24 j 22:34	8°♄26'23	0°00'-28	conjunction	1029 Jun 24 j 06:51	7°♄29'28	0°20'53
min. Earth dist.	1022 Nov 25 j 04:57	8°♄25'42	18.13952 AU	minimum elong	1029 Jun 24 j 06:51	7°♄29'28	0°20'53
asc. node	1023 Jan 11 j 13:52	6°♄43'51		retrograde	1029 Oct 12 j 06:01	11°♄49'16	
direct	1023 Feb 07 j 13:47	6°♄24'52		opposition	1029 Dec 25 j 09:13	9°♄46'54	0°24'55
				min. Earth dist.	1029 Dec 26 j 01:38	9°♄45'07	17.72300 AU
conjunction	1023 May 27 j 14:40	10°♄36'12	0°01'16	direct	1030 Mar 10 j 10:10	7°♄42'59	
minimum elong	1023 May 27 j 14:40	10°♄36'12	0°01'17				
behind sun begin	1023 May 27 j 07:53	10°♄35'13		conjunction	1030 Jun 29 j 08:16	12°♄04'47	0°23'54
behind sun end	1023 May 27 j 21:26	10°♄37'11		minimum elong	1030 Jun 29 j 08:16	12°♄04'47	0°23'55
max. Earth dist.	1023 May 27 j 05:42	10°♄34'53	20.10768 AU	max. Earth dist.	1030 Jun 28 j 12:23	12°♄01'45	19.69573 AU
retrograde	1023 Sep 15 j 08:15	14°♄51'32		retrograde	1030 Oct 17 j 04:02	16°♄25'09	
opposition	1023 Nov 29 j 11:41	12°♄49'19	0°03'14	opposition	1030 Dec 30 j 03:20	14°♄22'45	0°28'12
min. Earth dist.	1023 Nov 29 j 19:11	12°♄48'31	18.07580 AU	min. Earth dist.	1030 Dec 30 j 20:25	14°♄20'54	17.66913 AU
direct	1024 Feb 12 j 04:21	10°♄47'24		direct	1031 Mar 15 j 06:41	12°♄18'30	
				max. Earth dist.	1031 Jul 03 j 11:44	16°♄38'13	19.64288 AU
conjunction	1024 May 31 j 11:21	15°♄00'15	0°04'39				
minimum elong	1024 May 31 j 11:21	15°♄00'15	0°04'38	conjunction	1031 Jul 04 j 10:03	16°♄41'37	0°26'47
behind sun begin	1024 May 31 j 04:43	14°♄59'18		minimum elong	1031 Jul 04 j 10:03	16°♄41'37	0°26'46
behind sun end	1024 May 31 j 17:59	15°♄01'13		retrograde	1031 Oct 22 j 01:26	21°♄02'33	
max. Earth dist.	1024 May 31 j 01:44	14°♄58'51	20.04452 AU	opposition	1032 Jan 03 j 22:13	19°♄00'05	0°31'19
retrograde	1024 Sep 19 j 01:46	19°♄16'21		min. Earth dist.	1032 Jan 04 j 17:13	18°♄58'01	17.61755 AU
opposition	1024 Dec 03 j 01:22	17°♄14'06	0°06'57	direct	1032 Mar 19 j 02:47	16°♄55'28	
min. Earth dist.	1024 Dec 03 j 10:19	17°♄13'08	18.01336 AU				
direct	1025 Feb 15 j 19:10	15°♄11'51		conjunction	1032 Jul 08 j 12:32	21°♄19'53	0°29'30
				minimum elong	1032 Jul 08 j 12:31	21°♄19'53	0°29'30
conjunction	1025 Jun 05 j 08:44	19°♄26'13	0°07'58	max. Earth dist.	1032 Jul 07 j 13:44	21°♄16'23	19.59257 AU
minimum elong	1025 Jun 05 j 08:44	19°♄26'13	0°07'58	retrograde	1032 Oct 26 j 00:22	25°♄41'16	
behind sun begin	1025 Jun 05 j 02:42	19°♄25'20		opposition	1033 Jan 07 j 17:32	23°♄38'45	0°34'15
behind sun end	1025 Jun 05 j 14:46	19°♄27'05		min. Earth dist.	1033 Jan 08 j 12:45	23°♄36'40	17.56869 AU
max. Earth dist.	1025 Jun 04 j 20:22	19°♄24'22	19.98293 AU	direct	1033 Mar 24 j 01:31	21°♄33'48	
retrograde	1025 Sep 23 j 20:30	23°♄43'07					
opposition	1025 Dec 07 j 15:51	21°♄40'49	0°10'39	conjunction	1033 Jul 13 j 15:16	25°♄59'24	0°32'01
min. Earth dist.	1025 Dec 08 j 02:13	21°♄39'42	17.95260 AU	minimum elong	1033 Jul 13 j 15:16	25°♄59'24	0°32'01
direct	1026 Feb 20 j 10:57	19°♄38'13		max. Earth dist.	1033 Jul 12 j 14:51	25°♄55'39	19.54532 AU
					1033 Oct 03 j 02:27	0°♄	
conjunction	1026 Jun 10 j 06:59	23°♄54'08	0°11'17	retrograde	1033 Oct 30 j 21:46	0°♄21'14	
minimum elong	1026 Jun 10 j 06:59	23°♄54'08	0°11'16		1033 Nov 27 j 23:23	30°♄	
behind sun begin	1026 Jun 10 j 02:05	23°♄53'24		opposition	1034 Jan 12 j 13:43	28°♄18'40	0°36'58

min. Earth dist.	1034 Jan 13 j 10:38	28° $\overline{5}$ 16'22	17.52341 AU	retrograde	1041 Dec 07 j 17:41	8° $\overline{7}$ 12'47	
direct	1034 Mar 28 j 22:39	26° $\overline{5}$ 13'23		opposition	1042 Feb 19 j 02:36	6° $\overline{7}$ 10'42	0°48'47
	1034 Jul 07 j 21:53	0° $\overline{0}$		min. Earth dist.	1042 Feb 20 j 00:02	6° $\overline{7}$ 08'22	17.34506 AU
				direct	1042 May 06 j 09:07	4° $\overline{7}$ 04'29	
conjunction	1034 Jul 18 j 18:09	0° $\overline{0}$ 40'05	0°34'21				
minimum elong	1034 Jul 18 j 18:09	0° $\overline{0}$ 40'05	0°34'21	conjunction	1042 Aug 26 j 22:27	8° $\overline{7}$ 36'11	0°43'49
max. Earth dist.	1034 Jul 17 j 17:29	0° $\overline{0}$ 36'17	19.50202 AU	minimum elong	1042 Aug 26 j 22:27	8° $\overline{7}$ 36'11	0°43'49
retrograde	1034 Nov 04 j 21:08	5° $\overline{0}$ 02'17		max. Earth dist.	1042 Aug 25 j 21:43	8° $\overline{7}$ 32'18	19.34467 AU
opposition	1035 Jan 17 j 10:20	2° $\overline{0}$ 59'40	0°39'27	retrograde	1042 Dec 12 j 18:06	12° $\overline{7}$ 59'06	
min. Earth dist.	1035 Jan 18 j 06:53	2° $\overline{0}$ 57'25	17.48226 AU	opposition	1043 Feb 24 j 03:20	10° $\overline{7}$ 57'06	0°48'50
direct	1035 Apr 02 j 23:18	0° $\overline{0}$ 54'06		min. Earth dist.	1043 Feb 24 j 23:58	10° $\overline{7}$ 54'52	17.34631 AU
				direct	1043 May 11 j 12:01	8° $\overline{7}$ 50'55	
conjunction	1035 Jul 23 j 21:27	5° $\overline{0}$ 21'49	0°36'27	max. Earth dist.	1043 Aug 31 j 02:36	13° $\overline{7}$ 19'00	19.34811 AU
minimum elong	1035 Jul 23 j 21:27	5° $\overline{0}$ 21'49	0°36'27				
max. Earth dist.	1035 Jul 22 j 20:07	5° $\overline{0}$ 17'54	19.46309 AU	conjunction	1043 Sep 01 j 01:40	13° $\overline{7}$ 22'38	0°43'42
retrograde	1035 Nov 09 j 18:36	9° $\overline{0}$ 44'19		minimum elong	1043 Sep 01 j 01:40	13° $\overline{7}$ 22'38	0°43'42
opposition	1036 Jan 22 j 07:33	7° $\overline{0}$ 41'41	0°41'41	retrograde	1043 Dec 17 j 18:22	17° $\overline{7}$ 45'16	
min. Earth dist.	1036 Jan 23 j 05:31	7° $\overline{0}$ 39'16	17.44593 AU	opposition	1044 Feb 29 j 04:20	15° $\overline{7}$ 43'23	0°48'33
direct	1036 Apr 06 j 21:54	5° $\overline{0}$ 35'52		min. Earth dist.	1044 Mar 01 j 00:51	15° $\overline{7}$ 41'09	17.35188 AU
max. Earth dist.	1036 Jul 26 j 23:13	10° $\overline{0}$ 00'31	19.42938 AU	direct	1044 May 15 j 15:32	13° $\overline{7}$ 37'14	
				max. Earth dist.	1044 Sep 04 j 04:50	18° $\overline{7}$ 05'07	19.35594 AU
conjunction	1036 Jul 28 j 00:57	10° $\overline{0}$ 04'31	0°38'19				
minimum elong	1036 Jul 28 j 00:57	10° $\overline{0}$ 04'31	0°38'18	conjunction	1044 Sep 05 j 04:20	18° $\overline{7}$ 08'48	0°43'17
retrograde	1036 Nov 13 j 18:28	14° $\overline{0}$ 27'15		minimum elong	1044 Sep 05 j 04:20	18° $\overline{7}$ 08'48	0°43'17
opposition	1037 Jan 26 j 05:21	12° $\overline{0}$ 24'37	0°43'37	retrograde	1044 Dec 21 j 17:24	22° $\overline{7}$ 31'07	
min. Earth dist.	1037 Jan 27 j 02:30	12° $\overline{0}$ 22'18	17.41496 AU	opposition	1045 Mar 05 j 05:36	20° $\overline{7}$ 29'18	0°47'55
direct	1037 Apr 12 j 00:22	10° $\overline{0}$ 18'38		min. Earth dist.	1045 Mar 06 j 01:21	20° $\overline{7}$ 27'09	17.36197 AU
max. Earth dist.	1037 Aug 01 j 03:06	14° $\overline{0}$ 44'08	19.40116 AU	direct	1045 May 20 j 18:49	18° $\overline{7}$ 23'12	
				max. Earth dist.	1045 Sep 09 j 08:57	22° $\overline{7}$ 51'06	19.36827 AU
conjunction	1037 Aug 02 j 04:30	14° $\overline{0}$ 48'05	0°39'56				
minimum elong	1037 Aug 02 j 04:30	14° $\overline{0}$ 48'05	0°39'56	conjunction	1045 Sep 10 j 06:27	22° $\overline{7}$ 54'29	0°42'34
	1037 Aug 05 j 09:02	15° $\overline{0}$		minimum elong	1045 Sep 10 j 06:27	22° $\overline{7}$ 54'29	0°42'35
retrograde	1037 Nov 18 j 16:26	19° $\overline{0}$ 11'01		retrograde	1045 Dec 26 j 17:07	27° $\overline{7}$ 16'23	
opposition	1038 Jan 31 j 03:53	17° $\overline{0}$ 08'27	0°45'17	opposition	1046 Mar 10 j 06:57	25° $\overline{7}$ 14'37	0°46'57
min. Earth dist.	1038 Feb 01 j 01:59	17° $\overline{0}$ 06'02	17.38975 AU	min. Earth dist.	1046 Mar 11 j 01:50	25° $\overline{7}$ 12'35	17.37643 AU
direct	1038 Apr 17 j 00:09	15° $\overline{0}$ 02'20		direct	1046 May 25 j 23:30	23° $\overline{7}$ 08'37	
max. Earth dist.	1038 Aug 06 j 06:17	19° $\overline{0}$ 28'27	19.37898 AU	max. Earth dist.	1046 Sep 14 j 10:39	27° $\overline{7}$ 36'05	19.38509 AU
conjunction	1038 Aug 07 j 08:07	19° $\overline{0}$ 32'29	0°41'17	conjunction	1046 Sep 15 j 07:57	27° $\overline{7}$ 39'26	0°41'34
minimum elong	1038 Aug 07 j 08:07	19° $\overline{0}$ 32'29	0°41'16	minimum elong	1046 Sep 15 j 07:57	27° $\overline{7}$ 39'26	0°41'33
retrograde	1038 Nov 23 j 17:06	23° $\overline{0}$ 55'34			1046 Oct 24 j 10:45	0° $\overline{0}$	
opposition	1039 Feb 05 j 02:39	21° $\overline{0}$ 53'06	0°46'38	retrograde	1046 Dec 31 j 14:51	2° $\overline{0}$ 00'51	
min. Earth dist.	1039 Feb 05 j 23:47	21° $\overline{0}$ 50'47	17.37050 AU	opposition	1047 Mar 15 j 08:09	29° $\overline{0}$ 59'09	0°45'40
direct	1039 Apr 22 j 03:17	19° $\overline{0}$ 46'54			1047 Mar 15 j 00:11	30° $\overline{0}$	
max. Earth dist.	1039 Aug 11 j 11:06	24° $\overline{0}$ 13'47	19.36255 AU	min. Earth dist.	1047 Mar 16 j 02:23	29° $\overline{0}$ 57'11	17.39564 AU
				direct	1047 May 31 j 02:40	27° $\overline{0}$ 53'13	
conjunction	1039 Aug 12 j 11:56	24° $\overline{0}$ 17'40	0°42'21		1047 Aug 11 j 07:58	0° $\overline{0}$	
minimum elong	1039 Aug 12 j 11:55	24° $\overline{0}$ 17'40	0°42'21				
retrograde	1039 Nov 28 j 16:23	28° $\overline{0}$ 40'48		conjunction	1047 Sep 20 j 08:54	2° $\overline{0}$ 23'27	0°40'16
opposition	1040 Feb 10 j 02:12	26° $\overline{0}$ 38'28	0°47'41	minimum elong	1047 Sep 20 j 08:55	2° $\overline{0}$ 23'27	0°40'17
min. Earth dist.	1040 Feb 11 j 00:08	26° $\overline{0}$ 36'04	17.35683 AU	max. Earth dist.	1047 Sep 19 j 13:37	2° $\overline{0}$ 20'25	19.40672 AU
direct	1040 Apr 26 j 04:12	24° $\overline{0}$ 32'14		retrograde	1048 Jan 05 j 13:48	6° $\overline{0}$ 44'19	
				opposition	1048 Mar 19 j 09:25	4° $\overline{0}$ 42'41	0°44'04
conjunction	1040 Aug 16 j 15:34	29° $\overline{0}$ 03'28	0°43'08	min. Earth dist.	1048 Mar 20 j 02:02	4° $\overline{0}$ 40'53	17.41955 AU
minimum elong	1040 Aug 16 j 15:34	29° $\overline{0}$ 03'28	0°43'09	direct	1048 Jun 04 j 07:38	2° $\overline{0}$ 36'53	
max. Earth dist.	1040 Aug 15 j 14:04	28° $\overline{0}$ 59'28	19.35161 AU				
	1040 Aug 31 j 18:32	0° $\overline{0}$		conjunction	1048 Sep 24 j 08:54	7° $\overline{0}$ 06'23	0°38'43
retrograde	1040 Dec 02 j 17:20	3° $\overline{0}$ 26'37		minimum elong	1048 Sep 24 j 08:54	7° $\overline{0}$ 06'23	0°38'43
opposition	1041 Feb 14 j 02:06	1° $\overline{0}$ 24'24	0°48'24	max. Earth dist.	1048 Sep 23 j 14:41	7° $\overline{0}$ 03'32	19.43318 AU
min. Earth dist.	1041 Feb 14 j 23:08	1° $\overline{0}$ 22'07	17.34851 AU	retrograde	1049 Jan 09 j 10:35	11° $\overline{0}$ 26'40	
	1041 Mar 21 j 11:19	30° $\overline{0}$		opposition	1049 Mar 24 j 10:39	9° $\overline{0}$ 25'05	0°42'11
direct	1041 May 01 j 07:10	29° $\overline{0}$ 18'10		min. Earth dist.	1049 Mar 25 j 02:26	9° $\overline{0}$ 23'24	17.44867 AU
	1041 Jun 10 j 08:08	0° $\overline{0}$		direct	1049 Jun 09 j 10:03	7° $\overline{0}$ 19'26	
conjunction	1041 Aug 21 j 19:15	3° $\overline{0}$ 49'43	0°43'38	conjunction	1049 Sep 29 j 08:12	11° $\overline{0}$ 48'07	0°36'54
minimum elong	1041 Aug 21 j 19:15	3° $\overline{0}$ 49'43	0°43'37	minimum elong	1049 Sep 29 j 08:12	11° $\overline{0}$ 48'07	0°36'53
max. Earth dist.	1041 Aug 20 j 19:12	3° $\overline{0}$ 45'57	19.34573 AU	max. Earth dist.	1049 Sep 28 j 16:05	11° $\overline{0}$ 45'36	19.46501 AU

retrograde	1050 Jan 14 j 08:55	16° <del>0</del> 07'46		conjunction	1057 Nov 04 j 21:08	18° <del>0</del> 34'11	0°15'28
opposition	1050 Mar 29 j 11:34	14° <del>0</del> 06'16	0°40'01	minimum elong	1057 Nov 04 j 21:08	18° <del>0</del> 34'11	0°15'28
min. Earth dist.	1050 Mar 30 j 00:56	14° <del>0</del> 04'51	17.48308 AU	behind sun begin	1057 Nov 04 j 19:06	18° <del>0</del> 33'53	
direct	1050 Jun 14 j 14:14	12° <del>0</del> 00'50		behind sun end	1057 Nov 04 j 23:11	18° <del>0</del> 34'30	
				max. Earth dist.	1057 Nov 04 j 19:24	18° <del>0</del> 33'56	19.87563 AU
conjunction	1050 Oct 04 j 06:38	16° <del>0</del> 28'36	0°34'51	retrograde	1058 Feb 20 j 00:23	22° <del>0</del> 47'51	
minimum elong	1050 Oct 04 j 06:38	16° <del>0</del> 28'36	0°34'51	opposition	1058 May 06 j 08:39	20° <del>0</del> 47'44	0°15'23
max. Earth dist.	1050 Oct 03 j 16:20	16° <del>0</del> 26'22	19.50214 AU	min. Earth dist.	1058 May 06 j 08:20	20° <del>0</del> 47'46	17.90617 AU
retrograde	1051 Jan 19 j 04:56	20° <del>0</del> 47'35		direct	1058 Jul 22 j 15:40	18° <del>0</del> 45'11	
opposition	1051 Apr 03 j 12:24	18° <del>0</del> 46'13	0°37'36				
min. Earth dist.	1051 Apr 04 j 00:52	18° <del>0</del> 44'53	17.52290 AU	conjunction	1058 Nov 09 j 13:08	23° <del>0</del> 02'56	0°12'13
direct	1051 Jun 19 j 15:20	16° <del>0</del> 41'03		minimum elong	1058 Nov 09 j 13:08	23° <del>0</del> 02'56	0°12'13
				behind sun begin	1058 Nov 09 j 08:40	23° <del>0</del> 02'16	
conjunction	1051 Oct 09 j 04:18	21° <del>0</del> 07'48	0°32'35	behind sun end	1058 Nov 09 j 17:37	23° <del>0</del> 03'37	
minimum elong	1051 Oct 09 j 04:18	21° <del>0</del> 07'48	0°32'34	max. Earth dist.	1058 Nov 09 j 14:03	23° <del>0</del> 03'04	19.93708 AU
max. Earth dist.	1051 Oct 08 j 15:50	21° <del>0</del> 05'51	19.54463 AU	retrograde	1059 Feb 24 j 16:02	27° <del>0</del> 15'45	
retrograde	1052 Jan 24 j 02:49	25° <del>0</del> 26'06		opposition	1059 May 11 j 06:21	25° <del>0</del> 15'45	0°11'44
opposition	1052 Apr 07 j 12:48	23° <del>0</del> 24'54	0°34'57	min. Earth dist.	1059 May 11 j 05:14	25° <del>0</del> 15'52	17.96778 AU
min. Earth dist.	1052 Apr 07 j 22:31	23° <del>0</del> 23'53	17.56770 AU	direct	1059 Jul 27 j 12:56	23° <del>0</del> 13'34	
direct	1052 Jun 23 j 18:10	21° <del>0</del> 20'04					
				conjunction	1059 Nov 14 j 04:01	27° <del>0</del> 29'48	0°08'55
conjunction	1052 Oct 13 j 01:13	25° <del>0</del> 45'45	0°30'07	minimum elong	1059 Nov 14 j 04:01	27° <del>0</del> 29'48	0°08'55
minimum elong	1052 Oct 13 j 01:13	25° <del>0</del> 45'45	0°30'07	behind sun begin	1059 Nov 13 j 22:21	27° <del>0</del> 28'57	
max. Earth dist.	1052 Oct 12 j 15:04	25° <del>0</del> 44'10	19.59184 AU	behind sun end	1059 Nov 14 j 09:40	27° <del>0</del> 30'39	
	1053 Jan 17 j 00:21	0° <del>0</del> 00'00		max. Earth dist.	1059 Nov 14 j 05:33	27° <del>0</del> 30'01	19.99893 AU
retrograde	1053 Jan 27 j 22:18	0° <del>0</del> 03'20			1059 Dec 27 j 18:04	0° <del>0</del> 00'00	
	1053 Feb 08 j 01:01	30° <del>0</del> 00'00		retrograde	1060 Feb 29 j 09:34	1° <del>0</del> 00'00	
opposition	1053 Apr 12 j 13:11	28° <del>0</del> 02'20	0°32'06		1060 May 07 j 18:25	30° <del>0</del> 00'00	
min. Earth dist.	1053 Apr 12 j 22:06	28° <del>0</del> 01'23	17.61711 AU	opposition	1060 May 15 j 03:20	29° <del>0</del> 04'15	0°08'02
direct	1053 Jun 28 j 17:36	25° <del>0</del> 57'51		min. Earth dist.	1060 May 14 j 23:53	29° <del>0</del> 04'21	18.02978 AU
	1053 Oct 11 j 21:40	0° <del>0</del> 00'00		direct	1060 Jul 31 j 11:03	27° <del>0</del> 39'58	
					1060 Oct 16 j 08:34	0° <del>0</del> 00'00	
conjunction	1053 Oct 17 j 21:07	0° <del>0</del> 22'22	0°27'28				
minimum elong	1053 Oct 17 j 21:07	0° <del>0</del> 22'22	0°27'28	conjunction	1060 Nov 17 j 18:11	1° <del>0</del> 00'54	0°05'36
max. Earth dist.	1053 Oct 17 j 12:28	0° <del>0</del> 21'02	19.64334 AU	minimum elong	1060 Nov 17 j 18:12	1° <del>0</del> 00'54	0°05'37
retrograde	1054 Feb 01 j 20:07	4° <del>0</del> 39'14		behind sun begin	1060 Nov 17 j 11:53	1° <del>0</del> 00'53	
opposition	1054 Apr 17 j 13:02	2° <del>0</del> 38'26	0°29'02	behind sun end	1060 Nov 18 j 00:30	1° <del>0</del> 00'55	
min. Earth dist.	1054 Apr 17 j 19:10	2° <del>0</del> 37'47	17.67028 AU	max. Earth dist.	1060 Nov 17 j 22:36	1° <del>0</del> 00'55	20.06105 AU
direct	1054 Jul 03 j 19:06	0° <del>0</del> 34'20		retrograde	1061 Mar 04 j 23:51	6° <del>0</del> 00'54	
				opposition	1061 May 19 j 23:42	4° <del>0</del> 00'54	0°04'19
conjunction	1054 Oct 22 j 16:26	4° <del>0</del> 57'38	0°24'39	min. Earth dist.	1061 May 19 j 19:08	4° <del>0</del> 00'62	18.09202 AU
minimum elong	1054 Oct 22 j 16:26	4° <del>0</del> 57'38	0°24'39	direct	1061 Aug 05 j 07:13	2° <del>0</del> 00'42	
max. Earth dist.	1054 Oct 22 j 10:17	4° <del>0</del> 56'41	19.69811 AU				
retrograde	1055 Feb 06 j 14:28	9° <del>0</del> 13'43		conjunction	1061 Nov 22 j 07:12	6° <del>0</del> 00'17	0°02'16
opposition	1055 Apr 22 j 12:34	7° <del>0</del> 13'08	0°25'49	minimum elong	1061 Nov 22 j 07:12	6° <del>0</del> 00'17	0°02'15
min. Earth dist.	1055 Apr 22 j 18:06	7° <del>0</del> 12'33	17.72645 AU	behind sun begin	1061 Nov 22 j 00:39	6° <del>0</del> 00'16	
direct	1055 Jul 08 j 17:25	5° <del>0</del> 09'26		behind sun end	1061 Nov 22 j 13:44	6° <del>0</del> 00'18	
				max. Earth dist.	1061 Nov 22 j 12:22	6° <del>0</del> 00'18	20.12352 AU
conjunction	1055 Oct 27 j 10:51	9° <del>0</del> 31'26	0°21'42	retrograde	1062 Mar 09 j 15:22	10° <del>0</del> 00'27	
minimum elong	1055 Oct 27 j 10:51	9° <del>0</del> 31'26	0°21'43	opposition	1062 May 24 j 19:16	8° <del>0</del> 00'27	0°00'36
max. Earth dist.	1055 Oct 27 j 05:43	9° <del>0</del> 30'38	19.75559 AU	min. Earth dist.	1062 May 24 j 12:28	8° <del>0</del> 00'28	18.15477 AU
retrograde	1056 Feb 11 j 11:40	13° <del>0</del> 46'44		desc. node	1062 Jul 24 j 04:01	6° <del>0</del> 00'33	
opposition	1056 Apr 26 j 11:44	11° <del>0</del> 46'19	0°22'27	direct	1062 Aug 10 j 02:28	6° <del>0</del> 00'26	
min. Earth dist.	1056 Apr 26 j 14:34	11° <del>0</del> 46'01	17.78493 AU				
direct	1056 Jul 12 j 18:00	9° <del>0</del> 43'01		conjunction	1062 Nov 26 j 19:33	10° <del>0</del> 00'38	0°-1'-9
				minimum elong	1062 Nov 26 j 19:34	10° <del>0</del> 00'38	0°01'10
conjunction	1056 Oct 31 j 04:26	14° <del>0</del> 03'39	0°18'38	behind sun begin	1062 Nov 26 j 13:01	10° <del>0</del> 00'37	
minimum elong	1056 Oct 31 j 04:26	14° <del>0</del> 03'39	0°18'37	behind sun end	1062 Nov 27 j 02:06	10° <del>0</del> 00'39	
max. Earth dist.	1056 Oct 31 j 01:59	14° <del>0</del> 03'16	19.81491 AU	max. Earth dist.	1062 Nov 27 j 03:43	10° <del>0</del> 00'39	20.18645 AU
	1056 Nov 15 j 10:45	15° <del>0</del> 00'00		retrograde	1063 Mar 14 j 04:52	14° <del>0</del> 00'47	
retrograde	1057 Feb 15 j 04:53	18° <del>0</del> 18'08		opposition	1063 May 29 j 14:05	12° <del>0</del> 00'47	0°-3'-4
opposition	1057 May 01 j 10:36	16° <del>0</del> 17'54	0°18'58	min. Earth dist.	1063 May 29 j 05:46	12° <del>0</del> 00'48	18.21795 AU
min. Earth dist.	1057 May 01 j 12:44	16° <del>0</del> 17'40	17.84499 AU	direct	1063 Aug 14 j 20:58	10° <del>0</del> 00'47	
	1057 Jun 04 j 05:24	15° <del>0</del> 00'00					
direct	1057 Jul 17 j 15:51	14° <del>0</del> 14'59		conjunction	1063 Dec 01 j 06:59	14° <del>0</del> 00'57	0°-4'-29
	1057 Aug 28 j 19:53	15° <del>0</del> 00'00		minimum elong	1063 Dec 01 j 06:58	14° <del>0</del> 00'57	0°04'30
				behind sun begin	1063 Dec 01 j 00:33	14° <del>0</del> 00'56	

behind sun end	1063 Dec 01 j 13:23	14°♂58'08		retrograde	1071 Apr 17 j 09:06	18°♂29'23	
max. Earth dist.	1063 Dec 01 j 15:58	14°♂58'32	20.24999 AU	opposition	1071 Jul 03 j 21:28	16°♂30'34	0°-29'-29
retrograde	1064 Mar 17 j 18:56	19°♂05'48		min. Earth dist.	1071 Jul 03 j 01:37	16°♂32'33	18.70575 AU
opposition	1064 Jun 02 j 08:20	17°♂06'07	0°-6'-42	direct	1071 Sep 18 j 13:34	14°♂32'35	
min. Earth dist.	1064 Jun 01 j 21:53	17°♂07'11	18.28189 AU				
direct	1064 Aug 18 j 13:28	15°♂05'33		conjunction	1072 Jan 03 j 04:29	18°♂32'31	0°-27'-53
				minimum elong	1072 Jan 03 j 04:29	18°♂32'31	0°27'53
conjunction	1064 Dec 04 j 17:41	19°♂14'14	0°-7'-43	max. Earth dist.	1072 Jan 04 j 00:21	18°♂35'26	20.73091 AU
minimum elong	1064 Dec 04 j 17:41	19°♂14'14	0°07'43	retrograde	1072 Apr 20 j 19:33	22°♂36'15	
behind sun begin	1064 Dec 04 j 11:45	19°♂13'22		opposition	1072 Jul 07 j 10:47	20°♂37'29	0°-32'-11
behind sun end	1064 Dec 04 j 23:37	19°♂15'06		min. Earth dist.	1072 Jul 06 j 14:52	20°♂39'28	18.75542 AU
max. Earth dist.	1064 Dec 05 j 05:40	19°♂16'02	20.31410 AU	direct	1072 Sep 21 j 23:43	18°♂39'46	
retrograde	1065 Mar 22 j 08:06	23°♂22'05					
opposition	1065 Jun 07 j 01:52	21°♂22'31	0°-10'-16	conjunction	1073 Jan 06 j 11:11	22°♂38'39	0°-30'-15
min. Earth dist.	1065 Jun 06 j 13:41	21°♂23'45	18.34607 AU	minimum elong	1073 Jan 06 j 11:11	22°♂38'39	0°30'16
direct	1065 Aug 23 j 06:15	19°♂22'20		max. Earth dist.	1073 Jan 07 j 08:33	22°♂41'47	20.77846 AU
				retrograde	1073 Apr 25 j 06:49	26°♂41'55	
conjunction	1065 Dec 09 j 03:41	23°♂29'36	0°-10'-53	opposition	1073 Jul 11 j 23:19	24°♂43'10	0°-34'-42
minimum elong	1065 Dec 09 j 03:40	23°♂29'36	0°10'53	min. Earth dist.	1073 Jul 11 j 02:10	24°♂45'17	18.80080 AU
behind sun begin	1065 Dec 08 j 22:39	23°♂28'52		direct	1073 Sep 26 j 11:19	22°♂45'40	
behind sun end	1065 Dec 09 j 08:42	23°♂30'20					
max. Earth dist.	1065 Dec 09 j 16:22	23°♂31'30	20.37830 AU	conjunction	1074 Jan 10 j 17:24	26°♂43'34	0°-32'-27
retrograde	1066 Mar 26 j 21:13	27°♂36'44		minimum elong	1074 Jan 10 j 17:24	26°♂43'34	0°32'28
opposition	1066 Jun 11 j 18:34	25°♂37'18	0°-13'-45	max. Earth dist.	1074 Jan 11 j 14:32	26°♂46'39	20.82171 AU
min. Earth dist.	1066 Jun 11 j 04:49	25°♂38'42	18.41024 AU		1074 Mar 16 j 21:58	0°≈	
direct	1066 Aug 27 j 20:39	23°♂37'29		retrograde	1074 Apr 29 j 15:45	0°≈46'24	
					1074 Jun 13 j 23:29	30°♂	
conjunction	1066 Dec 13 j 13:11	27°♂43'26	0°-13'-59	opposition	1074 Jul 16 j 11:10	28°♂47'37	0°-37'-2
minimum elong	1066 Dec 13 j 13:11	27°♂43'25	0°13'59	min. Earth dist.	1074 Jul 15 j 14:19	28°♂49'42	18.84212 AU
behind sun begin	1066 Dec 13 j 09:43	27°♂42'55		direct	1074 Sep 30 j 20:02	26°♂50'18	
behind sun end	1066 Dec 13 j 16:38	27°♂43'56			1075 Jan 01 j 09:20	0°≈	
max. Earth dist.	1066 Dec 14 j 04:28	27°♂45'42	20.44210 AU				
	1067 Jan 22 j 18:57	0°♂		conjunction	1075 Jan 14 j 23:19	0°≈47'16	0°-34'-29
retrograde	1067 Mar 31 j 09:45	1°♂49'53		minimum elong	1075 Jan 14 j 23:19	0°≈47'16	0°34'29
	1067 Jun 12 j 13:37	30°♂		max. Earth dist.	1075 Jan 15 j 21:56	0°≈50'34	20.86107 AU
opposition	1067 Jun 16 j 10:45	29°♂50'36	0°-17'-8	retrograde	1075 May 04 j 02:14	4°≈49'42	
min. Earth dist.	1067 Jun 15 j 19:21	29°♂52'09	18.47350 AU	opposition	1075 Jul 20 j 22:28	2°≈50'53	0°-39'-10
direct	1067 Sep 01 j 11:32	27°♂51'12		min. Earth dist.	1075 Jul 20 j 00:15	2°≈53'06	18.87960 AU
	1067 Nov 14 j 05:55	0°♂		direct	1075 Oct 05 j 06:48	0°≈53'43	
conjunction	1067 Dec 17 j 21:49	1°♂55'49	0°-16'-59	conjunction	1076 Jan 19 j 04:38	4°≈49'49	0°-36'-19
minimum elong	1067 Dec 17 j 21:50	1°♂55'49	0°17'00	minimum elong	1076 Jan 19 j 04:38	4°≈49'49	0°36'21
max. Earth dist.	1067 Dec 18 j 13:38	1°♂58'10	20.50473 AU	max. Earth dist.	1076 Jan 20 j 03:13	4°≈53'06	20.89677 AU
retrograde	1068 Apr 03 j 22:09	6°♂01'40		retrograde	1076 May 07 j 10:30	8°≈51'57	
min. Earth dist.	1068 Jun 19 j 09:55	4°♂04'10	18.53546 AU	min. Earth dist.	1076 Jul 23 j 11:23	6°≈55'15	18.91379 AU
opposition	1068 Jun 20 j 02:27	4°♂02'30	0°-20'-25	opposition	1076 Jul 24 j 09:20	6°≈53'03	0°-41'-6
direct	1068 Sep 05 j 00:35	2°♂03'29		direct	1076 Oct 08 j 14:02	4°≈56'01	
conjunction	1068 Dec 21 j 06:15	6°♂06'52	0°-19'-54	conjunction	1077 Jan 22 j 10:00	8°≈51'21	0°-37'-58
minimum elong	1068 Dec 21 j 06:14	6°♂06'52	0°19'55	minimum elong	1077 Jan 22 j 10:00	8°≈51'21	0°37'59
max. Earth dist.	1068 Dec 22 j 00:18	6°♂09'32	20.56566 AU	max. Earth dist.	1077 Jan 23 j 09:59	8°≈54'50	20.92932 AU
retrograde	1069 Apr 08 j 10:07	10°♂12'07		retrograde	1077 May 11 j 19:52	12°≈53'12	
opposition	1069 Jun 24 j 17:20	8°♂13'06	0°-23'-35	opposition	1077 Jul 28 j 19:20	10°≈54'16	0°-42'-49
min. Earth dist.	1069 Jun 23 j 23:19	8°♂14'55	18.59523 AU	min. Earth dist.	1077 Jul 27 j 20:01	10°≈56'35	18.94476 AU
direct	1069 Sep 09 j 13:45	6°♂14'28		direct	1077 Oct 12 j 23:51	8°≈57'23	
conjunction	1069 Dec 25 j 14:00	10°♂16'38	0°-22'-41	conjunction	1078 Jan 26 j 15:01	12°≈52'02	0°-39'-26
minimum elong	1069 Dec 25 j 14:00	10°♂16'38	0°22'42	minimum elong	1078 Jan 26 j 15:01	12°≈52'02	0°39'27
max. Earth dist.	1069 Dec 26 j 08:12	10°♂19'19	20.62408 AU	max. Earth dist.	1078 Jan 27 j 14:45	12°≈55'28	20.95867 AU
retrograde	1070 Apr 12 j 21:37	14°♂21'21			1078 Mar 06 j 10:44	15°≈	
opposition	1070 Jun 29 j 07:46	12°♂22'27	0°-26'-36	retrograde	1078 May 16 j 04:14	16°≈53'40	
min. Earth dist.	1070 Jun 28 j 13:16	12°♂24'18	18.65229 AU		1078 Jul 30 j 23:59	15°♂	
direct	1070 Sep 14 j 01:19	10°♂24'09		min. Earth dist.	1078 Aug 01 j 06:17	14°≈56'58	18.97264 AU
				opposition	1078 Aug 02 j 05:07	14°≈54'42	0°-44'-19
conjunction	1070 Dec 29 j 21:30	14°♂25'11	0°-25'-21	direct	1078 Oct 17 j 05:42	12°≈57'57	
minimum elong	1070 Dec 29 j 21:30	14°♂25'11	0°25'23		1078 Dec 28 j 04:52	15°≈	
max. Earth dist.	1070 Dec 30 j 17:29	14°♂28'08	20.67937 AU				

conjunction	1079 Jan 30 j 19:57	16° <del>55</del> '01	0°-40'-42	conjunction	1087 Mar 03 j 15:46	18° <del>44</del> '20	0°-43'-27
minimum elong	1079 Jan 30 j 19:57	16° <del>55</del> '01	0°40'43	minimum elong	1087 Mar 03 j 15:46	18° <del>44</del> '20	0°43'28
max. Earth dist.	1079 Jan 31 j 20:51	16° <del>55</del> '37	20.98491 AU	max. Earth dist.	1087 Mar 04 j 13:41	18° <del>44</del> '28	21.04053 AU
retrograde	1079 May 20 j 12:50	20° <del>53</del> '30		retrograde	1087 Jun 22 j 09:33	22° <del>46</del> '39	
opposition	1079 Aug 06 j 14:21	18° <del>54</del> '31	0°-45'-36	min. Earth dist.	1087 Sep 07 j 10:56	20° <del>49</del> '15	19.03321 AU
min. Earth dist.	1079 Aug 05 j 14:14	18° <del>56</del> '55	18.99717 AU	opposition	1087 Sep 08 j 07:00	20° <del>47</del> '14	0°-47'-41
direct	1079 Oct 21 j 14:20	16° <del>57</del> '55		direct	1087 Nov 22 j 12:44	18° <del>50</del> '54	
conjunction	1080 Feb 04 j 00:49	20° <del>51</del> '29	0°-41'-46	conjunction	1088 Mar 06 j 22:18	22° <del>43</del> '42	0°-42'-50
minimum elong	1080 Feb 04 j 00:49	20° <del>51</del> '29	0°41'47	minimum elong	1088 Mar 06 j 22:18	22° <del>43</del> '42	0°42'51
max. Earth dist.	1080 Feb 05 j 01:16	20° <del>55</del> '01	21.00771 AU	max. Earth dist.	1088 Mar 07 j 18:44	22° <del>46</del> '37	21.02398 AU
retrograde	1080 May 23 j 21:12	24° <del>52</del> '54		retrograde	1088 Jun 25 j 16:40	26° <del>46</del> '19	
opposition	1080 Aug 09 j 23:22	22° <del>53</del> '53	0°-46'-40	opposition	1088 Sep 11 j 14:16	24° <del>46</del> '44	0°-46'-53
min. Earth dist.	1080 Aug 09 j 00:04	22° <del>56</del> '13	19.01826 AU	min. Earth dist.	1088 Sep 10 j 20:10	24° <del>48</del> '34	19.01436 AU
direct	1080 Oct 24 j 19:30	20° <del>57</del> '25		direct	1088 Nov 25 j 17:05	22° <del>50</del> '15	
conjunction	1081 Feb 07 j 05:50	24° <del>50</del> '36	0°-42'-38	conjunction	1089 Mar 11 j 05:16	26° <del>43</del> '19	0°-42'-00
minimum elong	1081 Feb 07 j 05:50	24° <del>50</del> '36	0°42'39	minimum elong	1089 Mar 11 j 05:16	26° <del>43</del> '19	0°42'02
max. Earth dist.	1081 Feb 08 j 07:07	24° <del>54</del> '14	21.02692 AU	max. Earth dist.	1089 Mar 12 j 01:24	26° <del>46</del> '12	21.00303 AU
retrograde	1081 May 28 j 05:54	28° <del>51</del> '58			1089 May 16 j 21:25	0° <del>46</del> '16	
min. Earth dist.	1081 Aug 13 j 07:42	26° <del>55</del> '23	19.03539 AU	retrograde	1089 Jun 30 j 02:35	0° <del>46</del> '16	
opposition	1081 Aug 14 j 07:54	26° <del>52</del> '58	0°-47'-30		1089 Aug 14 j 07:08	30° <del>46</del> '31	
direct	1081 Oct 29 j 02:45	24° <del>56</del> '37		opposition	1089 Sep 15 j 21:17	28° <del>46</del> '31	0°-45'-52
conjunction	1082 Feb 11 j 10:52	28° <del>49</del> '30	0°-43'-18	min. Earth dist.	1089 Sep 15 j 03:03	28° <del>48</del> '22	18.99128 AU
minimum elong	1082 Feb 11 j 10:52	28° <del>49</del> '30	0°43'19	direct	1089 Nov 29 j 23:41	26° <del>49</del> '52	
max. Earth dist.	1082 Feb 12 j 11:21	28° <del>53</del> '01	21.04187 AU		1090 Mar 02 j 20:15	0° <del>49</del> '56	
	1082 Mar 04 j 04:43	0° <del>50</del> '55		conjunction	1090 Mar 15 j 12:26	0° <del>43</del> '19	0°-40'-59
retrograde	1082 Jun 01 j 13:46	2° <del>50</del> '55		minimum elong	1090 Mar 15 j 12:26	0° <del>43</del> '19	0°41'00
opposition	1082 Aug 18 j 16:14	0° <del>51</del> '54	0°-48'-7	max. Earth dist.	1090 Mar 16 j 07:06	0° <del>45</del> '59	20.97798 AU
min. Earth dist.	1082 Aug 17 j 17:20	0° <del>54</del> '11	19.04818 AU	retrograde	1090 Jul 04 j 10:09	4° <del>46</del> '40	
	1082 Sep 10 j 01:33	30° <del>48</del> '25		opposition	1090 Sep 20 j 04:24	2° <del>46</del> '45	0°-44'-37
direct	1082 Nov 02 j 07:37	28° <del>55</del> '39		min. Earth dist.	1090 Sep 19 j 12:03	2° <del>48</del> '25	18.96447 AU
	1082 Dec 23 j 06:32	0° <del>54</del> '37		direct	1090 Dec 04 j 04:02	0° <del>49</del> '56	
conjunction	1083 Feb 15 j 16:12	2° <del>48</del> '19	0°-43'-45	conjunction	1091 Mar 19 j 20:10	4° <del>43</del> '50	0°-39'-45
minimum elong	1083 Feb 15 j 16:12	2° <del>48</del> '19	0°43'47	minimum elong	1091 Mar 19 j 20:10	4° <del>43</del> '50	0°39'45
max. Earth dist.	1083 Feb 16 j 17:08	2° <del>51</del> '54	21.05238 AU	max. Earth dist.	1091 Mar 20 j 14:29	4° <del>46</del> '27	20.94960 AU
retrograde	1083 Jun 05 j 23:02	6° <del>49</del> '49		retrograde	1091 Jul 08 j 20:29	8° <del>47</del> '39	
min. Earth dist.	1083 Aug 22 j 00:52	4° <del>53</del> '08	19.05617 AU	opposition	1091 Sep 24 j 11:25	6° <del>47</del> '35	0°-43'-9
opposition	1083 Aug 23 j 00:19	4° <del>50</del> '48	0°-48'-30	min. Earth dist.	1091 Sep 23 j 18:54	6° <del>49</del> '16	18.93442 AU
direct	1083 Nov 06 j 14:12	2° <del>54</del> '37		direct	1091 Dec 08 j 10:32	4° <del>50</del> '36	
conjunction	1084 Feb 19 j 21:34	6° <del>47</del> '10	0°-44'00	conjunction	1092 Mar 23 j 04:15	8° <del>45</del> '03	0°-38'-19
minimum elong	1084 Feb 19 j 21:34	6° <del>47</del> '10	0°44'00	minimum elong	1092 Mar 23 j 04:15	8° <del>45</del> '03	0°38'20
max. Earth dist.	1084 Feb 20 j 21:22	6° <del>50</del> '34	21.05775 AU	max. Earth dist.	1092 Mar 23 j 21:05	8° <del>47</del> '27	20.91797 AU
retrograde	1084 Jun 09 j 06:46	10° <del>48</del> '50		retrograde	1092 Jul 12 j 05:06	12° <del>49</del> '23	
min. Earth dist.	1084 Aug 25 j 10:39	8° <del>51</del> '55	19.05891 AU	opposition	1092 Sep 27 j 18:42	10° <del>49</del> '11	0°-41'-28
opposition	1084 Aug 26 j 08:22	8° <del>49</del> '45	0°-48'-39	min. Earth dist.	1092 Sep 27 j 04:09	10° <del>50</del> '40	18.90129 AU
direct	1084 Nov 09 j 18:51	6° <del>53</del> '36		direct	1092 Dec 11 j 14:46	8° <del>52</del> '01	
conjunction	1085 Feb 23 j 03:31	10° <del>46</del> '06	0°-44'-2	conjunction	1093 Mar 27 j 13:07	12° <del>47</del> '06	0°-36'-42
minimum elong	1085 Feb 23 j 03:31	10° <del>46</del> '06	0°44'03	minimum elong	1093 Mar 27 j 13:07	12° <del>47</del> '06	0°36'42
max. Earth dist.	1085 Feb 24 j 03:13	10° <del>49</del> '30	21.05773 AU	max. Earth dist.	1093 Mar 28 j 05:19	12° <del>49</del> '26	20.88347 AU
retrograde	1085 Jun 13 j 16:28	14° <del>47</del> '56		retrograde	1093 Jul 16 j 16:24	16° <del>51</del> '59	
opposition	1085 Aug 30 j 15:56	12° <del>48</del> '47	0°-48'-34	min. Earth dist.	1093 Oct 01 j 11:19	14° <del>53</del> '10	18.86525 AU
min. Earth dist.	1085 Aug 29 j 18:04	12° <del>50</del> '58	19.05596 AU	opposition	1093 Oct 02 j 01:48	14° <del>51</del> '41	0°-39'-35
direct	1085 Nov 14 j 01:27	10° <del>52</del> '37		direct	1093 Dec 15 j 21:41	12° <del>54</del> '20	
conjunction	1086 Feb 27 j 09:33	14° <del>45</del> '09	0°-43'-51	conjunction	1094 Mar 31 j 22:27	16° <del>50</del> '11	0°-34'-53
minimum elong	1086 Feb 27 j 09:33	14° <del>45</del> '09	0°43'51	minimum elong	1094 Mar 31 j 22:27	16° <del>50</del> '11	0°34'54
max. Earth dist.	1086 Feb 28 j 07:40	14° <del>48</del> '19	21.05187 AU	max. Earth dist.	1094 Apr 01 j 13:04	16° <del>52</del> '16	20.84597 AU
retrograde	1086 Jun 17 j 23:46	18° <del>47</del> '13		retrograde	1094 Jul 21 j 01:51	20° <del>55</del> '40	
opposition	1086 Sep 03 j 23:37	16° <del>47</del> '57	0°-48'-15	opposition	1094 Oct 06 j 09:25	18° <del>55</del> '16	0°-37'-29
min. Earth dist.	1086 Sep 03 j 03:41	16° <del>49</del> '57	19.04728 AU	min. Earth dist.	1094 Oct 05 j 21:04	18° <del>56</del> '32	18.82630 AU
direct	1086 Nov 18 j 05:54	14° <del>51</del> '43		direct	1094 Dec 20 j 02:03	16° <del>57</del> '45	

conjunction	1095 Apr 05 j 08:26	20° $\Upsilon$ 54'24	0°-32'-54
minimum elong	1095 Apr 05 j 08:26	20° $\Upsilon$ 54'24	0°32'55
max. Earth dist.	1095 Apr 05 j 22:12	20° $\Upsilon$ 56'22	20.80569 AU
retrograde	1095 Jul 25 j 14:37	25° $\Upsilon$ 00'34	
opposition	1095 Oct 10 j 17:09	23° $\Upsilon$ 00'04	0°-35'-11
min. Earth dist.	1095 Oct 10 j 05:08	23° $\Upsilon$ 01'18	18.78439 AU
direct	1095 Dec 24 j 09:41	21° $\Upsilon$ 02'22	
conjunction	1096 Apr 08 j 19:18	24° $\Upsilon$ 59'56	0°-30'-44
minimum elong	1096 Apr 08 j 19:19	24° $\Upsilon$ 59'56	0°30'45
max. Earth dist.	1096 Apr 09 j 07:13	25° $\Upsilon$ 01'38	20.76216 AU
retrograde	1096 Jul 29 j 01:12	29° $\Upsilon$ 06'47	
opposition	1096 Oct 14 j 01:12	27° $\Upsilon$ 06'12	0°-32'-42
min. Earth dist.	1096 Oct 13 j 15:43	27° $\Upsilon$ 07'11	18.73918 AU
direct	1096 Dec 27 j 15:07	25° $\Upsilon$ 08'17	
conjunction	1097 Apr 13 j 07:06	29° $\Upsilon$ 06'50	0°-28'-24
minimum elong	1097 Apr 13 j 07:06	29° $\Upsilon$ 06'50	0°28'25
max. Earth dist.	1097 Apr 13 j 17:29	29° $\Upsilon$ 08'19	20.71530 AU
	1097 Apr 28 j 17:59	0° $\mathcal{B}$	
retrograde	1097 Aug 02 j 14:50	3° $\mathcal{B}$ 14'24	
opposition	1097 Oct 18 j 09:33	1° $\mathcal{B}$ 13'43	0°-30'-2
min. Earth dist.	1097 Oct 18 j 00:50	1° $\mathcal{B}$ 14'37	18.69040 AU
	1097 Nov 19 j 09:19	30° $\mathcal{R}\Upsilon$	
direct	1097 Dec 31 j 23:33	29° $\Upsilon$ 15'33	
	1098 Feb 11 j 15:45	0° $\mathcal{B}$	
conjunction	1098 Apr 17 j 19:29	3° $\mathcal{B}$ 15'08	0°-25'-54
minimum elong	1098 Apr 17 j 19:29	3° $\mathcal{B}$ 15'08	0°25'54
max. Earth dist.	1098 Apr 18 j 03:45	3° $\mathcal{B}$ 16'20	20.66454 AU
retrograde	1098 Aug 07 j 02:43	7° $\mathcal{B}$ 23'27	
opposition	1098 Oct 22 j 18:28	5° $\mathcal{B}$ 22'38	0°-27'-12
min. Earth dist.	1098 Oct 22 j 12:22	5° $\mathcal{B}$ 23'16	18.63774 AU
direct	1099 Jan 05 j 06:42	3° $\mathcal{B}$ 24'10	
conjunction	1099 Apr 22 j 08:48	7° $\mathcal{B}$ 24'51	0°-23'-15
minimum elong	1099 Apr 22 j 08:48	7° $\mathcal{B}$ 24'51	0°23'17
max. Earth dist.	1099 Apr 22 j 15:08	7° $\mathcal{B}$ 25'45	20.61015 AU
retrograde	1099 Aug 11 j 16:42	11° $\mathcal{B}$ 33'54	
opposition	1099 Oct 27 j 03:33	9° $\mathcal{B}$ 32'55	0°-24'-11
min. Earth dist.	1099 Oct 26 j 22:21	9° $\mathcal{B}$ 33'27	18.58149 AU
direct	1100 Jan 09 j 16:09	7° $\mathcal{B}$ 34'06	
conjunction	1100 Apr 25 j 22:52	11° $\mathcal{B}$ 35'56	0°-20'-28
minimum elong	1100 Apr 25 j 22:52	11° $\mathcal{B}$ 35'56	0°20'29
max. Earth dist.	1100 Apr 26 j 03:06	11° $\mathcal{B}$ 36'32	20.55218 AU
	1100 Jul 03 j 00:51	15° $\mathcal{B}$	
retrograde	1100 Aug 15 j 05:30	15° $\mathcal{B}$ 45'43	
	1100 Sep 28 j 01:32	15° $\mathcal{R}\mathcal{B}$	
opposition	1100 Oct 30 j 13:11	13° $\mathcal{B}$ 44'33	0°-21'-2
min. Earth dist.	1100 Oct 30 j 10:35	13° $\mathcal{B}$ 44'49	18.52193 AU

direct	1100 Jan 09 j 16:09	7°834'06		minimum elong	1106 May 23 j 03:25	7°II13'17	0°01'42
				behind sun begin	1106 May 22 j 20:39	7°II12'18	
conjunction	1100 Apr 25 j 22:52	11°835'56	0°-20'-28	behind sun end	1106 May 23 j 10:12	7°II14'15	
minimum elong	1100 Apr 25 j 22:52	11°835'56	0°20'29	max. Earth dist.	1106 May 22 j 21:10	7°II12'23	20.16862 AU
max. Earth dist.	1100 Apr 26 j 03:06	11°836'32	20.55218 AU	retrograde	1106 Sep 10 j 23:49	11°II27'49	
	1100 Jul 03 j 00:51	15°8		asc. node	1106 Nov 21 j 16:03	9°II35'02	
retrograde	1100 Aug 15 j 05:30	15°845'43		opposition	1106 Nov 25 j 07:43	9°II25'40	0°00'02
	1100 Sep 28 j 01:32	15°88		min. Earth dist.	1106 Nov 25 j 13:51	9°II25'01	18.13637 AU
opposition	1100 Oct 30 j 13:11	13°844'33	0°-21'-2	direct	1107 Feb 07 j 21:57	7°II24'07	
min. Earth dist.	1100 Oct 30 j 10:35	13°844'49	18.52193 AU				
direct	1101 Jan 13 j 00:56	11°845'23		conjunction	1107 May 27 j 23:03	11°II35'26	0°01'45
	1101 Apr 16 j 15:48	15°8		minimum elong	1107 May 27 j 23:05	11°II35'26	0°01'44
				behind sun begin	1107 May 27 j 16:18	11°II34'27	
conjunction	1101 Apr 30 j 13:42	15°848'24	0°-17'-34	behind sun end	1107 May 28 j 05:51	11°II36'25	
minimum elong	1101 Apr 30 j 13:42	15°848'24	0°17'34	max. Earth dist.	1107 May 27 j 14:25	11°II34'10	20.10477 AU
max. Earth dist.	1101 Apr 30 j 15:51	15°848'42	20.49137 AU	retrograde	1107 Sep 15 j 17:50	15°II50'49	
retrograde	1101 Aug 19 j 19:55	19°858'56		opposition	1107 Nov 29 j 20:43	13°II48'36	0°03'45
opposition	1101 Nov 03 j 22:56	17°857'34	0°-17'-45	min. Earth dist.	1107 Nov 30 j 03:53	13°II47'50	18.07308 AU
min. Earth dist.	1101 Nov 03 j 21:15	17°857'44	18.45989 AU	direct	1108 Feb 12 j 13:02	11°II46'41	
direct	1102 Jan 17 j 11:31	15°857'59					
				conjunction	1108 May 31 j 19:48	15°II59'34	0°05'06
conjunction	1102 May 05 j 05:17	20°802'15	0°-14'-32	minimum elong	1108 May 31 j 19:48	15°II59'34	0°05'07
minimum elong	1102 May 05 j 05:16	20°802'15	0°14'34	behind sun begin	1108 May 31 j 13:14	15°II58'37	
behind sun begin	1102 May 05 j 02:34	20°801'52		behind sun end	1108 Jun 01 j 02:23	16°II00'32	
behind sun end	1102 May 05 j 07:58	20°802'38		max. Earth dist.	1108 May 31 j 10:20	15°II58'11	20.04196 AU
max. Earth dist.	1102 May 05 j 05:42	20°802'19	20.42829 AU	retrograde	1108 Sep 19 j 10:59	20°II15'47	
retrograde	1102 Aug 24 j 09:25	24°813'34		opposition	1108 Dec 03 j 10:35	18°II13'32	0°07'28
opposition	1102 Nov 08 j 09:21	22°812'00	0°-14'-21	min. Earth dist.	1108 Dec 03 j 19:28	18°II12'35	18.01083 AU
min. Earth dist.	1102 Nov 08 j 09:56	22°811'56	18.39603 AU	direct	1109 Feb 16 j 03:01	16°II11'19	
direct	1103 Jan 21 j 21:34	20°812'01					
				conjunction	1109 Jun 05 j 17:12	20°II25'45	0°08'26
conjunction	1103 May 09 j 21:28	24°817'35	0°-11'-26	minimum elong	1109 Jun 05 j 17:12	20°II25'45	0°08'26
minimum elong	1103 May 09 j 21:29	24°817'35	0°11'26	behind sun begin	1109 Jun 05 j 11:17	20°II24'54	
behind sun begin	1103 May 09 j 16:40	24°816'54		behind sun end	1109 Jun 05 j 23:07	20°II26'37	
behind sun end	1103 May 10 j 02:18	24°818'16		max. Earth dist.	1109 Jun 05 j 05:03	20°II23'57	19.98031 AU
max. Earth dist.	1103 May 09 j 19:51	24°817'21	20.36395 AU	retrograde	1109 Sep 24 j 06:07	24°II42'49	
retrograde	1103 Aug 29 j 00:47	28°829'41		opposition	1109 Dec 08 j 01:04	22°II40'33	0°11'10
opposition	1103 Nov 12 j 20:05	26°827'56	0°-10'-51	min. Earth dist.	1109 Dec 08 j 11:17	22°II39'27	17.94976 AU
min. Earth dist.	1103 Nov 12 j 21:30	26°827'47	18.33121 AU	direct	1110 Feb 20 j 19:44	20°II38'00	
direct	1104 Jan 26 j 09:22	24°827'31					
				conjunction	1110 Jun 10 j 15:41	24°II54'01	0°11'45
conjunction	1104 May 13 j 14:43	28°834'28	0°-8'-15	minimum elong	1110 Jun 10 j 15:41	24°II54'01	0°11'45
minimum elong	1104 May 13 j 14:43	28°834'28	0°08'16	behind sun begin	1110 Jun 10 j 11:00	24°II53'20	
behind sun begin	1104 May 13 j 08:46	28°833'37		behind sun end	1110 Jun 10 j 20:21	24°II54'42	
behind sun end	1104 May 13 j 20:40	28°835'19		max. Earth dist.	1110 Jun 10 j 02:49	24°II52'06	19.91962 AU
max. Earth dist.	1104 May 13 j 11:41	28°834'03	20.29873 AU	retrograde	1110 Sep 29 j 01:08	29°II11'52	
	1104 Jun 07 j 06:53	0°II		opposition	1110 Dec 12 j 16:22	27°II09'35	0°14'51
retrograde	1104 Sep 01 j 15:24	2°II47'21		min. Earth dist.	1110 Dec 13 j 04:11	27°II08'19	17.88954 AU
opposition	1104 Nov 16 j 07:19	0°II45'27	0°-7'-16	direct	1111 Feb 25 j 12:00	25°II06'44	
min. Earth dist.	1104 Nov 16 j 10:51	0°II45'04	18.26587 AU				
	1104 Dec 04 j 13:47	30°88		conjunction	1111 Jun 15 j 14:50	29°II24'16	0°15'01
direct	1105 Jan 29 j 20:27	28°844'38		minimum elong	1111 Jun 15 j 14:50	29°II24'16	0°15'01
	1105 Mar 25 j 15:08	0°II		behind sun begin	1111 Jun 15 j 12:44	29°II23'58	
				behind sun end	1111 Jun 15 j 16:56	29°II24'35	
conjunction	1105 May 18 j 08:43	2°II53'00	0°-5'00	max. Earth dist.	1111 Jun 14 j 22:58	29°II21'53	19.85984 AU
minimum elong	1105 May 18 j 08:42	2°II53'00	0°05'01		1111 Jun 25 j 12:10	0°8	
behind sun begin	1105 May 18 j 02:08	2°II52'03		retrograde	1111 Oct 03 j 21:14	3°842'53	
behind sun end	1105 May 18 j 15:17	2°II53'57		opposition	1111 Dec 17 j 08:27	1°840'35	0°18'27
max. Earth dist.	1105 May 18 j 03:24	2°II52'15	20.23350 AU	min. Earth dist.	1111 Dec 17 j 21:55	1°839'08	17.83023 AU
retrograde	1105 Sep 06 j 08:00	7°II06'42			1112 Jan 31 j 18:11	30°8II	
opposition	1105 Nov 20 j 19:10	5°II04'39	0°-3'-38	direct	1112 Mar 01 j 06:01	29°II37'22	
min. Earth dist.	1105 Nov 20 j 23:31	5°II04'11	18.20082 AU		1112 Mar 30 j 10:24	0°8	
direct	1106 Feb 03 j 09:45	3°II03'27					
				conjunction	1112 Jun 19 j 15:03	3°856'26	0°18'13
conjunction	1106 May 23 j 03:26	7°II13'17	0°-1'-41	minimum elong	1112 Jun 19 j 15:03	3°856'26	0°18'13

max. Earth dist.	1112 Jun 18 j 22:27	3° $\mathring{U}$ 53'55	19.80084 AU	minimum elong	1120 Jul 28 j 09:44	11° $\mathring{O}$ 05'42	0°38'35
retrograde	1112 Oct 07 j 18:21	8° $\mathring{U}$ 15'44			1120 Oct 13 j 00:22	15° $\mathring{O}$	
opposition	1112 Dec 21 j 01:11	6° $\mathring{U}$ 13'23	0°21'59	retrograde	1120 Nov 14 j 03:54	15° $\mathring{O}$ 28'33	
min. Earth dist.	1112 Dec 21 j 15:59	6° $\mathring{U}$ 11'47	17.77174 AU		1120 Dec 16 j 17:48	15° $\mathring{R}$ $\mathring{O}$	
direct	1113 Mar 06 j 00:34	4° $\mathring{U}$ 09'49		opposition	1121 Jan 26 j 14:56	13° $\mathring{O}$ 25'52	0°43'53
				min. Earth dist.	1121 Jan 27 j 11:30	13° $\mathring{O}$ 23'37	17.40943 AU
conjunction	1113 Jun 24 j 15:44	8° $\mathring{U}$ 30'19	0°21'20	direct	1121 Apr 12 j 09:08	11° $\mathring{O}$ 19'51	
minimum elong	1113 Jun 24 j 15:44	8° $\mathring{U}$ 30'19	0°21'20		1121 Jul 20 j 07:05	15° $\mathring{O}$	
max. Earth dist.	1113 Jun 23 j 20:13	8° $\mathring{U}$ 27'22	19.74301 AU				
retrograde	1113 Oct 12 j 15:02	12° $\mathring{U}$ 50'17		conjunction	1121 Aug 02 j 13:28	15° $\mathring{O}$ 49'21	0°40'09
opposition	1113 Dec 25 j 18:45	10° $\mathring{U}$ 47'53	0°25'23	minimum elong	1121 Aug 02 j 13:28	15° $\mathring{O}$ 49'21	0°40'09
min. Earth dist.	1113 Dec 26 j 11:13	10° $\mathring{U}$ 46'05	17.71479 AU	max. Earth dist.	1121 Aug 01 j 12:33	15° $\mathring{O}$ 45'28	19.39653 AU
direct	1114 Mar 10 j 19:36	8° $\mathring{U}$ 43'55		retrograde	1121 Nov 19 j 02:23	20° $\mathring{O}$ 12'24	
				opposition	1122 Jan 31 j 13:31	18° $\mathring{O}$ 09'49	0°45'31
conjunction	1114 Jun 29 j 17:01	13° $\mathring{U}$ 05'49	0°24'19	min. Earth dist.	1122 Feb 01 j 11:09	18° $\mathring{O}$ 07'27	17.38590 AU
minimum elong	1114 Jun 29 j 17:01	13° $\mathring{U}$ 05'49	0°24'19	direct	1122 Apr 17 j 09:26	16° $\mathring{O}$ 03'42	
max. Earth dist.	1114 Jun 28 j 21:10	13° $\mathring{U}$ 02'48	19.68690 AU				
retrograde	1114 Oct 17 j 13:42	17° $\mathring{U}$ 26'22		conjunction	1122 Aug 07 j 17:10	20° $\mathring{O}$ 33'55	0°41'28
opposition	1114 Dec 30 j 12:54	15° $\mathring{U}$ 23'53	0°28'39	minimum elong	1122 Aug 07 j 17:10	20° $\mathring{O}$ 33'55	0°41'28
min. Earth dist.	1114 Dec 31 j 06:09	15° $\mathring{U}$ 22'01	17.65974 AU	max. Earth dist.	1122 Aug 06 j 15:56	20° $\mathring{O}$ 29'59	19.37584 AU
direct	1115 Mar 15 j 15:58	13° $\mathring{U}$ 19'35		retrograde	1122 Nov 24 j 03:11	24° $\mathring{O}$ 57'07	
				opposition	1123 Feb 05 j 12:29	22° $\mathring{O}$ 54'39	0°46'51
conjunction	1115 Jul 04 j 18:52	17° $\mathring{U}$ 42'48	0°27'10	min. Earth dist.	1123 Feb 06 j 09:13	22° $\mathring{O}$ 52'23	17.36783 AU
minimum elong	1115 Jul 04 j 18:52	17° $\mathring{U}$ 42'48	0°27'11	direct	1123 Apr 22 j 12:03	20° $\mathring{O}$ 48'28	
max. Earth dist.	1115 Jul 03 j 20:35	17° $\mathring{U}$ 39'23	19.63310 AU				
retrograde	1115 Oct 22 j 10:34	22° $\mathring{U}$ 03'52		conjunction	1123 Aug 12 j 21:11	25° $\mathring{O}$ 19'18	0°42'31
opposition	1116 Jan 04 j 07:37	20° $\mathring{U}$ 01'19	0°31'45	minimum elong	1123 Aug 12 j 21:11	25° $\mathring{O}$ 19'18	0°42'31
min. Earth dist.	1116 Jan 05 j 02:35	19° $\mathring{U}$ 59'15	17.60748 AU	max. Earth dist.	1123 Aug 11 j 20:34	25° $\mathring{O}$ 15'27	19.36025 AU
direct	1116 Mar 19 j 12:24	17° $\mathring{U}$ 56'37		retrograde	1123 Nov 29 j 02:17	29° $\mathring{O}$ 42'34	
				opposition	1124 Feb 10 j 12:05	27° $\mathring{O}$ 40'13	0°47'51
conjunction	1116 Jul 08 j 21:20	22° $\mathring{U}$ 21'07	0°29'52	min. Earth dist.	1124 Feb 11 j 09:52	27° $\mathring{O}$ 37'51	17.35476 AU
minimum elong	1116 Jul 08 j 21:19	22° $\mathring{U}$ 21'06	0°29'51	direct	1124 Apr 26 j 13:23	25° $\mathring{O}$ 34'01	
max. Earth dist.	1116 Jul 07 j 22:52	22° $\mathring{U}$ 17'40	19.58237 AU		1124 Aug 15 j 15:10	0° $\mathring{M}$	
retrograde	1116 Oct 26 j 09:40	26° $\mathring{U}$ 42'39		max. Earth dist.	1124 Aug 15 j 23:44	0° $\mathring{M}$ 01'21	19.34960 AU
opposition	1117 Jan 08 j 03:02	24° $\mathring{U}$ 40'01	0°34'39				
min. Earth dist.	1117 Jan 08 j 22:11	24° $\mathring{U}$ 37'56	17.55850 AU	conjunction	1124 Aug 17 j 01:04	0° $\mathring{M}$ 05'19	0°43'16
direct	1117 Mar 24 j 10:23	22° $\mathring{U}$ 34'59		minimum elong	1124 Aug 17 j 01:03	0° $\mathring{M}$ 05'19	0°43'15
				retrograde	1124 Dec 03 j 03:36	4° $\mathring{M}$ 28'35	
conjunction	1117 Jul 13 j 23:53	27° $\mathring{U}$ 00'39	0°32'22	opposition	1125 Feb 14 j 12:09	2° $\mathring{M}$ 26'21	0°48'32
minimum elong	1117 Jul 13 j 23:53	27° $\mathring{U}$ 00'39	0°32'22	min. Earth dist.	1125 Feb 15 j 09:00	2° $\mathring{M}$ 24'05	17.34643 AU
max. Earth dist.	1117 Jul 12 j 23:48	26° $\mathring{U}$ 56'56	19.53527 AU	direct	1125 May 01 j 17:02	0° $\mathring{M}$ 20'09	
	1117 Sep 05 j 00:59	0° $\mathring{O}$		max. Earth dist.	1125 Aug 21 j 04:41	4° $\mathring{M}$ 47'59	19.34344 AU
retrograde	1117 Oct 31 j 06:47	1° $\mathring{O}$ 22'36					
	1117 Dec 28 j 09:30	30° $\mathring{R}$ $\mathring{U}$		conjunction	1125 Aug 22 j 04:47	4° $\mathring{M}$ 51'45	0°43'43
opposition	1118 Jan 12 j 23:10	29° $\mathring{U}$ 19'54	0°37'20	minimum elong	1125 Aug 22 j 04:47	4° $\mathring{M}$ 51'45	0°43'44
min. Earth dist.	1118 Jan 13 j 19:46	29° $\mathring{U}$ 17'39	17.51367 AU	retrograde	1125 Dec 08 j 03:02	9° $\mathring{M}$ 14'56	
direct	1118 Mar 29 j 08:28	27° $\mathring{U}$ 14'32		opposition	1126 Feb 19 j 12:45	7° $\mathring{M}$ 12'50	0°48'53
	1118 Jun 21 j 03:22	0° $\mathring{O}$		min. Earth dist.	1126 Feb 20 j 10:13	7° $\mathring{M}$ 10'30	17.34248 AU
max. Earth dist.	1118 Jul 18 j 02:49	1° $\mathring{O}$ 37'35	19.49270 AU	direct	1126 May 06 j 18:58	5° $\mathring{M}$ 06'39	
				max. Earth dist.	1126 Aug 26 j 07:23	9° $\mathring{M}$ 34'30	19.34172 AU
conjunction	1118 Jul 19 j 02:54	1° $\mathring{O}$ 41'18	0°34'40				
minimum elong	1118 Jul 19 j 02:54	1° $\mathring{O}$ 41'18	0°34'40	conjunction	1126 Aug 27 j 08:15	9° $\mathring{M}$ 38'25	0°43'52
retrograde	1118 Nov 05 j 06:10	6° $\mathring{O}$ 03'36		minimum elong	1126 Aug 27 j 08:15	9° $\mathring{M}$ 38'25	0°43'52
opposition	1119 Jan 17 j 19:42	4° $\mathring{O}$ 00'53	0°39'47	retrograde	1126 Dec 13 j 04:19	14° $\mathring{M}$ 01'25	
min. Earth dist.	1119 Jan 18 j 15:53	3° $\mathring{O}$ 58'40	17.47354 AU	opposition	1127 Feb 24 j 13:23	11° $\mathring{M}$ 59'25	0°48'53
direct	1119 Apr 03 j 08:19	1° $\mathring{O}$ 55'14		min. Earth dist.	1127 Feb 25 j 10:00	11° $\mathring{M}$ 57'11	17.34295 AU
max. Earth dist.	1119 Jul 23 j 05:18	6° $\mathring{O}$ 19'09	19.45506 AU	direct	1127 May 11 j 22:44	9° $\mathring{M}$ 53'14	
conjunction	1119 Jul 24 j 06:13	6° $\mathring{O}$ 23'00	0°36'44	conjunction	1127 Sep 01 j 11:37	14° $\mathring{M}$ 25'02	0°43'43
minimum elong	1119 Jul 24 j 06:13	6° $\mathring{O}$ 23'00	0°36'44	minimum elong	1127 Sep 01 j 11:37	14° $\mathring{M}$ 25'02	0°43'43
retrograde	1119 Nov 10 j 03:46	10° $\mathring{O}$ 45'36		max. Earth dist.	1127 Aug 31 j 12:20	14° $\mathring{M}$ 21'22	19.34432 AU
opposition	1120 Jan 22 j 17:07	8° $\mathring{O}$ 42'53	0°41'59	retrograde	1127 Dec 18 j 03:54	18° $\mathring{M}$ 47'47	
min. Earth dist.	1120 Jan 23 j 14:31	8° $\mathring{O}$ 40'32	17.43870 AU	opposition	1128 Feb 29 j 14:33	16° $\mathring{M}$ 45'53	0°48'33
direct	1120 Apr 07 j 07:38	6° $\mathring{O}$ 37'01		min. Earth dist.	1128 Mar 01 j 11:13	16° $\mathring{M}$ 43'38	17.34767 AU
max. Earth dist.	1120 Jul 27 j 08:44	11° $\mathring{O}$ 01'49	19.42298 AU	direct	1128 May 16 j 01:09	14° $\mathring{M}$ 39'44	
conjunction	1120 Jul 28 j 09:44	11° $\mathring{O}$ 05'42	0°38'34	conjunction	1128 Sep 05 j 14:14	19° $\mathring{M}$ 11'23	0°43'16



minimum elong	1128 Sep 05 j 14:14	19° <del>11</del> '23	0°43'16	minimum elong	1136 Oct 13 j 11:40	26° <del>50</del> '31	0°29'49
max. Earth dist.	1128 Sep 04 j 14:33	19° <del>10</del> '39	19.35133 AU	max. Earth dist.	1136 Oct 13 j 01:35	26° <del>48</del> '57	19.59212 AU
retrograde	1128 Dec 22 j 04:26	23° <del>11</del> '33'49			1136 Dec 08 j 21:31	0° <del>11</del> '	
opposition	1129 Mar 05 j 15:46	21° <del>11</del> '31'58	0°47'52	retrograde	1137 Jan 28 j 09:37	1° <del>11</del> '08'13	
min. Earth dist.	1129 Mar 06 j 11:30	21° <del>11</del> '29'50	17.35701 AU		1137 Mar 22 j 11:41	30° <del>11</del> ' <del>11</del>	
direct	1129 May 21 j 05:06	19° <del>11</del> '25'52		opposition	1137 Apr 12 j 23:42	29° <del>11</del> '07'17	0°31'45
				min. Earth dist.	1137 Apr 13 j 08:35	29° <del>11</del> '06'21	17.61766 AU
conjunction	1129 Sep 10 j 16:32	23° <del>11</del> '57'14	0°42'31	direct	1137 Jun 29 j 03:47	27° <del>11</del> '02'53	
minimum elong	1129 Sep 10 j 16:32	23° <del>11</del> '57'14	0°42'30		1137 Sep 24 j 12:27	0° <del>11</del> '	
max. Earth dist.	1129 Sep 09 j 18:55	23° <del>11</del> '53'50	19.36305 AU				
retrograde	1129 Dec 27 j 03:15	28° <del>11</del> '19'15		conjunction	1137 Oct 18 j 07:53	1° <del>11</del> '27'30	0°27'08
opposition	1130 Mar 10 j 17:03	26° <del>11</del> '17'28	0°46'52	minimum elong	1137 Oct 18 j 07:53	1° <del>11</del> '27'30	0°27'09
min. Earth dist.	1130 Mar 11 j 12:03	26° <del>11</del> '15'25	17.37105 AU	max. Earth dist.	1137 Oct 17 j 23:22	1° <del>11</del> '26'11	19.64409 AU
direct	1130 May 26 j 08:28	24° <del>11</del> '11'27		retrograde	1138 Feb 02 j 06:54	5° <del>11</del> '44'26	
				opposition	1138 Apr 17 j 23:33	3° <del>11</del> '43'42	0°28'40
conjunction	1130 Sep 15 j 18:00	28° <del>11</del> '42'22	0°41'28	min. Earth dist.	1138 Apr 18 j 05:50	3° <del>11</del> '43'02	17.67111 AU
minimum elong	1130 Sep 15 j 18:00	28° <del>11</del> '42'22	0°41'29	direct	1138 Jul 04 j 05:09	1° <del>11</del> '39'39	
max. Earth dist.	1130 Sep 14 j 20:34	28° <del>11</del> '39'00	19.37965 AU				
	1130 Oct 06 j 13:37	0° <del>11</del> '		conjunction	1138 Oct 23 j 03:23	6° <del>11</del> '03'02	0°24'18
retrograde	1131 Jan 01 j 02:07	3° <del>11</del> '03'54		minimum elong	1138 Oct 23 j 03:23	6° <del>11</del> '03'02	0°24'18
opposition	1131 Mar 15 j 18:21	1° <del>11</del> '02'10	0°45'32	max. Earth dist.	1138 Oct 22 j 21:05	6° <del>11</del> '02'03	19.69890 AU
min. Earth dist.	1131 Mar 16 j 12:24	1° <del>11</del> '00'14	17.39022 AU	retrograde	1139 Feb 07 j 02:03	10° <del>11</del> '19'09	
	1131 Apr 09 j 22:02	30° <del>11</del> ' <del>11</del>		opposition	1139 Apr 22 j 23:22	8° <del>11</del> '18'36	0°25'24
direct	1131 May 31 j 12:23	28° <del>11</del> '56'14		min. Earth dist.	1139 Apr 23 j 05:05	8° <del>11</del> '18'00	17.72716 AU
	1131 Jul 20 j 14:01	0° <del>11</del> '		direct	1139 Jul 09 j 04:27	6° <del>11</del> '14'56	
conjunction	1131 Sep 20 j 18:55	3° <del>11</del> '26'35	0°40'08	conjunction	1139 Oct 27 j 21:53	10° <del>11</del> '36'58	0°21'19
minimum elong	1131 Sep 20 j 18:55	3° <del>11</del> '26'35	0°40'08	minimum elong	1139 Oct 27 j 21:53	10° <del>11</del> '36'58	0°21'18
max. Earth dist.	1131 Sep 19 j 23:49	3° <del>11</del> '23'35	19.40145 AU	max. Earth dist.	1139 Oct 27 j 16:43	10° <del>11</del> '36'10	19.75607 AU
retrograde	1132 Jan 06 j 00:15	7° <del>11</del> '47'34		retrograde	1140 Feb 11 j 22:06	14° <del>11</del> '52'17	
opposition	1132 Mar 19 j 19:35	5° <del>11</del> '45'54	0°43'54	opposition	1140 Apr 26 j 22:37	12° <del>11</del> '51'53	0°22'00
min. Earth dist.	1132 Mar 20 j 12:05	5° <del>11</del> '44'08	17.41460 AU	min. Earth dist.	1140 Apr 27 j 01:39	12° <del>11</del> '51'34	17.78516 AU
direct	1132 Jun 04 j 16:49	3° <del>11</del> '40'06		direct	1140 Jul 13 j 04:56	10° <del>11</del> '48'35	
					1140 Oct 29 j 04:07	15° <del>11</del> '	
conjunction	1132 Sep 24 j 19:01	8° <del>11</del> '09'44	0°38'32	conjunction	1140 Oct 31 j 15:41	15° <del>11</del> '09'14	0°18'13
minimum elong	1132 Sep 24 j 19:01	8° <del>11</del> '09'44	0°38'32	minimum elong	1140 Oct 31 j 15:42	15° <del>11</del> '09'14	0°18'14
max. Earth dist.	1132 Sep 24 j 00:55	8° <del>11</del> '06'53	19.42868 AU	max. Earth dist.	1140 Oct 31 j 13:00	15° <del>11</del> '08'49	19.81482 AU
retrograde	1133 Jan 09 j 21:29	12° <del>11</del> '30'08		retrograde	1141 Feb 15 j 15:55	19° <del>11</del> '23'42	
opposition	1133 Mar 24 j 20:51	10° <del>11</del> '28'33	0°41'58	opposition	1141 May 01 j 21:31	17° <del>11</del> '23'27	0°18'29
min. Earth dist.	1133 Mar 25 j 12:13	10° <del>11</del> '26'54	17.44475 AU	min. Earth dist.	1141 May 01 j 23:56	17° <del>11</del> '23'11	17.84459 AU
direct	1133 Jun 09 j 19:55	8° <del>11</del> '22'56		direct	1141 Jul 18 j 03:30	15° <del>11</del> '20'30	
conjunction	1133 Sep 29 j 18:16	12° <del>11</del> '51'44	0°36'42	conjunction	1141 Nov 05 j 08:25	19° <del>11</del> '39'42	0°15'01
minimum elong	1133 Sep 29 j 18:16	12° <del>11</del> '51'44	0°36'42	minimum elong	1141 Nov 05 j 08:24	19° <del>11</del> '39'42	0°15'01
max. Earth dist.	1133 Sep 29 j 02:33	12° <del>11</del> '49'16	19.46173 AU	behind sun begin	1141 Nov 05 j 05:50	19° <del>11</del> '39'19	
retrograde	1134 Jan 14 j 19:25	17° <del>11</del> '11'31		behind sun end	1141 Nov 05 j 10:59	19° <del>11</del> '40'05	
opposition	1134 Mar 29 j 21:50	15° <del>11</del> '10'03	0°39'47	max. Earth dist.	1141 Nov 05 j 06:31	19° <del>11</del> '39'25	19.87486 AU
min. Earth dist.	1134 Mar 30 j 10:56	15° <del>11</del> '08'39	17.48046 AU	retrograde	1142 Feb 20 j 10:41	23° <del>11</del> '53'20	
direct	1134 Jun 14 j 23:50	13° <del>11</del> '04'40		opposition	1142 May 06 j 19:39	21° <del>11</del> '53'10	0°14'53
				min. Earth dist.	1142 May 06 j 19:29	21° <del>11</del> '53'11	17.90500 AU
conjunction	1134 Oct 04 j 16:54	17° <del>11</del> '32'34	0°34'37	direct	1142 Jul 23 j 02:24	19° <del>11</del> '50'34	
minimum elong	1134 Oct 04 j 16:54	17° <del>11</del> '32'34	0°34'36				
max. Earth dist.	1134 Oct 04 j 02:43	17° <del>11</del> '30'21	19.50024 AU	conjunction	1142 Nov 10 j 00:25	24° <del>11</del> '08'18	0°11'46
retrograde	1135 Jan 19 j 15:44	21° <del>11</del> '51'41		minimum elong	1142 Nov 10 j 00:25	24° <del>11</del> '08'18	0°11'46
opposition	1135 Apr 03 j 22:35	19° <del>11</del> '50'23	0°37'20	behind sun begin	1142 Nov 09 j 19:44	24° <del>11</del> '07'36	
min. Earth dist.	1135 Apr 04 j 10:48	19° <del>11</del> '49'05	17.52163 AU	behind sun end	1142 Nov 10 j 05:06	24° <del>11</del> '09'00	
direct	1135 Jun 20 j 01:03	17° <del>11</del> '45'17		max. Earth dist.	1142 Nov 10 j 01:07	24° <del>11</del> '08'24	19.93560 AU
				retrograde	1143 Feb 25 j 02:49	28° <del>11</del> '21'02	
conjunction	1135 Oct 09 j 14:44	22° <del>11</del> '12'11	0°32'19	opposition	1143 May 11 j 17:14	26° <del>11</del> '20'59	0°11'12
minimum elong	1135 Oct 09 j 14:44	22° <del>11</del> '12'11	0°32'19	min. Earth dist.	1143 May 11 j 16:21	26° <del>11</del> '21'05	17.96605 AU
max. Earth dist.	1135 Oct 09 j 02:35	22° <del>11</del> '10'17	19.54401 AU	direct	1143 Jul 28 j 00:18	24° <del>11</del> '18'43	
retrograde	1136 Jan 24 j 13:44	26° <del>11</del> '30'35					
opposition	1136 Apr 07 j 23:10	24° <del>11</del> '29'29	0°34'39	conjunction	1143 Nov 14 j 15:19	28° <del>11</del> '34'55	0°08'27
min. Earth dist.	1136 Apr 08 j 08:49	24° <del>11</del> '28'27	17.56756 AU	minimum elong	1143 Nov 14 j 15:19	28° <del>11</del> '34'55	0°08'27
direct	1136 Jun 24 j 03:45	22° <del>11</del> '24'43		behind sun begin	1143 Nov 14 j 09:33	28° <del>11</del> '34'03	
				behind sun end	1143 Nov 14 j 21:06	28° <del>11</del> '35'47	
conjunction	1136 Oct 13 j 11:40	26° <del>11</del> '50'31	0°29'49				

max. Earth dist.	1143 Nov 14 j 16:47	28° <del>ℓ</del> 35'08	19.99710 AU	min. Earth dist.	1150 Jun 11 j 15:04	26° <del>♊</del> 43'26	18.41530 AU
	1143 Dec 08 j 04:08	0° <del>♊</del>		direct	1150 Aug 28 j 07:08	24° <del>♊</del> 42'18	
retrograde	1144 Feb 29 j 20:05	2° <del>♊</del> 46'48					
opposition	1144 May 15 j 14:10	0° <del>♊</del> 46'49	0°07'30	conjunction	1150 Dec 14 j 00:05	28° <del>♊</del> 48'16	0°-14'-27
min. Earth dist.	1144 May 15 j 10:41	0° <del>♊</del> 47'10	18.02793 AU	minimum elong	1150 Dec 14 j 00:05	28° <del>♊</del> 48'16	0°14'28
	1144 Jun 04 j 00:10	30° <del>♋</del>		behind sun begin	1150 Dec 13 j 20:59	28° <del>♊</del> 47'49	
direct	1144 Jul 31 j 21:32	28° <del>♋</del> 44'51		behind sun end	1150 Dec 14 j 03:12	28° <del>♊</del> 48'43	
	1144 Sep 24 j 22:12	0° <del>♋</del>		max. Earth dist.	1150 Dec 14 j 15:24	28° <del>♊</del> 50'33	20.44754 AU
					1151 Jan 03 j 05:48	0° <del>♋</del>	
conjunction	1144 Nov 18 j 05:19	2° <del>♊</del> 59'32	0°05'08	retrograde	1151 Mar 31 j 20:17	2° <del>♋</del> 54'42	
minimum elong	1144 Nov 18 j 05:18	2° <del>♊</del> 59'31	0°05'07	opposition	1151 Jun 16 j 21:07	0° <del>♋</del> 55'31	0°-17'-39
behind sun begin	1144 Nov 17 j 22:56	2° <del>♊</del> 58'35		min. Earth dist.	1151 Jun 16 j 05:51	0° <del>♋</del> 57'04	18.47924 AU
behind sun end	1144 Nov 18 j 11:40	3° <del>♊</del> 00'28			1151 Jul 10 j 16:38	30° <del>♋</del>	
max. Earth dist.	1144 Nov 18 j 09:45	3° <del>♊</del> 00'10	20.05934 AU	direct	1151 Sep 01 j 22:15	28° <del>♊</del> 56'11	
retrograde	1145 Mar 05 j 10:51	7° <del>♊</del> 10'32			1151 Oct 22 j 14:00	0° <del>♋</del>	
opposition	1145 May 20 j 10:29	5° <del>♊</del> 10'37	0°03'46				
min. Earth dist.	1145 May 20 j 05:53	5° <del>♊</del> 11'05	18.09059 AU	conjunction	1151 Dec 18 j 08:51	3° <del>♋</del> 00'50	0°-17'-27
direct	1145 Aug 05 j 18:07	3° <del>♊</del> 09'00		minimum elong	1151 Dec 18 j 08:51	3° <del>♋</del> 00'50	0°17'28
				max. Earth dist.	1151 Dec 19 j 00:31	3° <del>♋</del> 03'10	20.51068 AU
conjunction	1145 Nov 22 j 18:19	7° <del>♊</del> 22'07	0°01'46	retrograde	1152 Apr 04 j 08:56	7° <del>♋</del> 06'39	
minimum elong	1145 Nov 22 j 18:20	7° <del>♊</del> 22'07	0°01'46	opposition	1152 Jun 20 j 12:46	5° <del>♋</del> 07'35	0°-20'-56
behind sun begin	1145 Nov 22 j 11:47	7° <del>♊</del> 21'09		min. Earth dist.	1152 Jun 19 j 20:19	5° <del>♋</del> 09'14	18.54151 AU
behind sun end	1145 Nov 23 j 00:53	7° <del>♊</del> 23'05		direct	1152 Sep 05 j 10:23	3° <del>♋</del> 08'37	
max. Earth dist.	1145 Nov 22 j 23:38	7° <del>♊</del> 22'54	20.12253 AU				
retrograde	1146 Mar 10 j 02:34	11° <del>♊</del> 32'17		conjunction	1152 Dec 21 j 17:12	7° <del>♋</del> 11'59	0°-20'-20
opposition	1146 May 25 j 05:47	9° <del>♊</del> 32'26	0°00'04	minimum elong	1152 Dec 21 j 17:12	7° <del>♋</del> 11'59	0°20'21
min. Earth dist.	1146 May 24 j 22:43	9° <del>♊</del> 33'09	18.15435 AU	max. Earth dist.	1152 Dec 22 j 11:08	7° <del>♋</del> 14'39	20.57167 AU
desc. node	1146 May 31 j 09:55	9° <del>♊</del> 17'18		retrograde	1153 Apr 08 j 20:29	11° <del>♋</del> 17'11	
direct	1146 Aug 10 j 13:13	7° <del>♊</del> 31'08		min. Earth dist.	1153 Jun 24 j 10:03	9° <del>♋</del> 20'00	18.60110 AU
				opposition	1153 Jun 25 j 03:41	9° <del>♋</del> 18'14	0°-24'-4
conjunction	1146 Nov 27 j 06:42	11° <del>♊</del> 42'47	0°-1'-39	direct	1153 Sep 10 j 00:38	7° <del>♋</del> 19'38	
minimum elong	1146 Nov 27 j 06:41	11° <del>♊</del> 42'47	0°01'41				
behind sun begin	1146 Nov 27 j 00:09	11° <del>♊</del> 41'49		conjunction	1153 Dec 26 j 01:00	11° <del>♋</del> 21'46	0°-23'-7
behind sun end	1146 Nov 27 j 13:14	11° <del>♊</del> 43'45		minimum elong	1153 Dec 26 j 01:00	11° <del>♋</del> 21'46	0°23'09
max. Earth dist.	1146 Nov 27 j 15:00	11° <del>♊</del> 44'01	20.18672 AU	max. Earth dist.	1153 Dec 26 j 18:52	11° <del>♋</del> 24'24	20.62970 AU
retrograde	1147 Mar 14 j 15:48	15° <del>♊</del> 52'07		retrograde	1154 Apr 13 j 08:09	15° <del>♋</del> 26'23	
opposition	1147 May 30 j 00:40	13° <del>♊</del> 52'22	0°-3'-36	opposition	1154 Jun 29 j 17:57	13° <del>♋</del> 27'31	0°-27'-4
min. Earth dist.	1147 May 29 j 16:10	13° <del>♊</del> 53'14	18.21899 AU	min. Earth dist.	1154 Jun 28 j 23:45	13° <del>♋</del> 29'20	18.65759 AU
direct	1147 Aug 15 j 07:45	11° <del>♊</del> 51'27		direct	1154 Sep 14 j 11:31	11° <del>♋</del> 29'12	
conjunction	1147 Dec 01 j 17:57	16° <del>♊</del> 01'36	0°-4'-58	conjunction	1154 Dec 30 j 08:32	15° <del>♋</del> 30'11	0°-25'-46
minimum elong	1147 Dec 01 j 17:58	16° <del>♊</del> 01'36	0°04'58	minimum elong	1154 Dec 30 j 08:31	15° <del>♋</del> 30'11	0°25'46
behind sun begin	1147 Dec 01 j 11:35	16° <del>♊</del> 00'40		max. Earth dist.	1154 Dec 31 j 04:13	15° <del>♋</del> 33'05	20.68430 AU
behind sun end	1147 Dec 02 j 00:20	16° <del>♊</del> 02'32		retrograde	1155 Apr 17 j 18:59	19° <del>♋</del> 34'14	
max. Earth dist.	1147 Dec 02 j 03:07	16° <del>♊</del> 02'58	20.25181 AU	opposition	1155 Jul 04 j 07:41	17° <del>♋</del> 35'25	0°-29'-55
retrograde	1148 Mar 18 j 06:41	20° <del>♊</del> 10'11		min. Earth dist.	1155 Jul 03 j 12:18	17° <del>♋</del> 37'21	18.71027 AU
opposition	1148 Jun 02 j 18:49	18° <del>♊</del> 10'32	0°-7'-14	direct	1155 Sep 19 j 00:35	15° <del>♋</del> 37'23	
min. Earth dist.	1148 Jun 02 j 08:02	18° <del>♊</del> 11'38	18.28446 AU				
direct	1148 Aug 19 j 00:29	16° <del>♊</del> 10'00		conjunction	1156 Jan 03 j 15:18	19° <del>♋</del> 37'13	0°-28'-16
				minimum elong	1156 Jan 03 j 15:18	19° <del>♋</del> 37'13	0°28'17
conjunction	1148 Dec 05 j 04:46	20° <del>♊</del> 18'44	0°-8'-11	max. Earth dist.	1156 Jan 04 j 10:48	19° <del>♋</del> 40'05	20.73502 AU
minimum elong	1148 Dec 05 j 04:45	20° <del>♊</del> 18'44	0°08'12	retrograde	1156 Apr 21 j 05:49	23° <del>♋</del> 40'45	
behind sun begin	1148 Dec 04 j 22:56	20° <del>♊</del> 17'53		opposition	1156 Jul 07 j 20:53	21° <del>♋</del> 41'56	0°-32'-35
behind sun end	1148 Dec 05 j 10:35	20° <del>♊</del> 19'35		min. Earth dist.	1156 Jul 07 j 01:15	21° <del>♋</del> 43'54	18.75913 AU
max. Earth dist.	1148 Dec 05 j 16:51	20° <del>♊</del> 20'32	20.31741 AU	direct	1156 Sep 22 j 10:47	19° <del>♋</del> 44'08	
retrograde	1149 Mar 22 j 18:48	24° <del>♊</del> 26'33					
opposition	1149 Jun 07 j 12:12	22° <del>♊</del> 27'04	0°-10'-47	conjunction	1157 Jan 06 j 21:54	23° <del>♋</del> 42'52	0°-30'-36
min. Earth dist.	1149 Jun 07 j 00:00	22° <del>♊</del> 28'18	18.35007 AU	minimum elong	1157 Jan 06 j 21:54	23° <del>♋</del> 42'52	0°30'37
direct	1149 Aug 23 j 16:50	20° <del>♊</del> 26'56		max. Earth dist.	1157 Jan 07 j 19:04	23° <del>♋</del> 45'58	20.78189 AU
				retrograde	1157 Apr 25 j 15:35	27° <del>♋</del> 45'54	
conjunction	1149 Dec 09 j 14:41	24° <del>♊</del> 34'15	0°-11'-21	opposition	1157 Jul 12 j 09:07	25° <del>♋</del> 47'04	0°-35'-5
minimum elong	1149 Dec 09 j 14:41	24° <del>♊</del> 34'15	0°11'22	min. Earth dist.	1157 Jul 11 j 12:20	25° <del>♋</del> 49'09	18.80405 AU
behind sun begin	1149 Dec 09 j 09:50	24° <del>♊</del> 33'33		direct	1157 Sep 26 j 22:18	23° <del>♋</del> 49'28	
behind sun end	1149 Dec 09 j 19:31	24° <del>♊</del> 34'58					
max. Earth dist.	1149 Dec 10 j 03:22	24° <del>♊</del> 36'09	20.38290 AU	conjunction	1158 Jan 11 j 03:51	27° <del>♋</del> 47'11	0°-32'-47
retrograde	1150 Mar 27 j 08:32	28° <del>♊</del> 41'23		minimum elong	1158 Jan 11 j 03:51	27° <del>♋</del> 47'11	0°32'47
opposition	1150 Jun 12 j 04:58	26° <del>♊</del> 42'02	0°-14'-16	max. Earth dist.	1158 Jan 12 j 00:48	27° <del>♋</del> 50'14	20.82497 AU

	1158 Feb 20 j 04:58	0°♊	conjunction	1166 Feb 11 j 20:28	29°♊50'25	0°-43'-24
retrograde	1158 Apr 30 j 01:15	1°♊49'46	minimum elong	1166 Feb 11 j 20:28	29°♊50'25	0°43'25
	1158 Jul 13 j 01:38	30°♊♌	max. Earth dist.	1166 Feb 12 j 20:54	29°♊53'55	21.05327 AU
opposition	1158 Jul 16 j 20:56	29°♌50'53	0°-37'-23	1166 Feb 14 j 15:11	0°♋	
min. Earth dist.	1158 Jul 16 j 00:03	29°♌52'58	18.84553 AU	retrograde	1166 Jun 01 j 23:28	3°♋51'43
direct	1158 Oct 01 j 07:11	27°♌53'26		min. Earth dist.	1166 Aug 18 j 02:34	1°♋55'06 19.05966 AU
	1158 Dec 13 j 16:17	0°♊	opposition	1166 Aug 19 j 01:18	1°♋52'50	0°-48'-13
				1166 Oct 22 j 06:29	30°♊♋	
conjunction	1159 Jan 15 j 09:28	1°♊50'14	0°-34'-46	direct	1166 Nov 02 j 16:01	29°♊56'41
minimum elong	1159 Jan 15 j 09:28	1°♊50'14	0°34'48	1166 Nov 14 j 00:28	0°♋	
max. Earth dist.	1159 Jan 16 j 08:10	1°♊53'32	20.86474 AU			
retrograde	1159 May 04 j 10:23	5°♊52'25		conjunction	1167 Feb 16 j 01:41	3°♋49'18 0°-43'-50
min. Earth dist.	1159 Jul 20 j 09:46	3°♊55'44	18.88373 AU	minimum elong	1167 Feb 16 j 01:41	3°♋49'18 0°43'50
opposition	1159 Jul 21 j 08:03	3°♊53'30	0°-39'-29	max. Earth dist.	1167 Feb 17 j 02:34	3°♋52'52 21.06379 AU
direct	1159 Oct 05 j 17:08	1°♊56'14		retrograde	1167 Jun 06 j 08:35	7°♋50'42
				min. Earth dist.	1167 Aug 22 j 10:13	5°♋54'06 19.06743 AU
conjunction	1160 Jan 19 j 14:44	5°♊52'09	0°-36'-35	opposition	1167 Aug 23 j 09:22	5°♋51'47 0°-48'-34
minimum elong	1160 Jan 19 j 14:44	5°♊52'09	0°36'36	direct	1167 Nov 06 j 23:35	3°♋55'43
max. Earth dist.	1160 Jan 20 j 13:17	5°♊55'26	20.90145 AU			
retrograde	1160 May 07 j 19:08	9°♊54'02		conjunction	1168 Feb 20 j 07:07	7°♋48'11 0°-44'-2
opposition	1160 Jul 24 j 18:43	7°♊55'05	0°-41'-22	minimum elong	1168 Feb 20 j 07:07	7°♋48'11 0°44'04
min. Earth dist.	1160 Jul 23 j 20:28	7°♊57'18	18.91914 AU	max. Earth dist.	1168 Feb 21 j 06:31	7°♋51'32 21.06874 AU
direct	1160 Oct 09 j 00:38	5°♊57'59		retrograde	1168 Jun 09 j 16:37	11°♋49'44
				opposition	1168 Aug 26 j 17:16	9°♋50'44 0°-48'-41
conjunction	1161 Jan 22 j 19:54	9°♊53'09	0°-38'-12	min. Earth dist.	1168 Aug 25 j 19:48	9°♋52'53 19.06959 AU
minimum elong	1161 Jan 22 j 19:54	9°♊53'09	0°38'14	direct	1168 Nov 10 j 03:53	7°♋54'40
max. Earth dist.	1161 Jan 23 j 20:02	9°♊56'39	20.93534 AU			
retrograde	1161 May 12 j 04:34	13°♊54'46		conjunction	1169 Feb 23 j 12:56	11°♋47'05 0°-44'-3
min. Earth dist.	1161 Jul 28 j 05:10	11°♊58'10	18.95150 AU	minimum elong	1169 Feb 23 j 12:56	11°♋47'05 0°44'03
opposition	1161 Jul 29 j 04:42	11°♊55'49	0°-43'-3	max. Earth dist.	1169 Feb 24 j 12:19	11°♋50'26 21.06803 AU
direct	1161 Oct 13 j 09:04	9°♊58'54		retrograde	1169 Jun 14 j 01:14	15°♋48'46
				min. Earth dist.	1169 Aug 30 j 03:13	13°♋51'51 19.06589 AU
conjunction	1162 Jan 27 j 00:46	13°♊53'25	0°-39'-38	opposition	1169 Aug 31 j 00:51	13°♋49'41 0°-48'-34
minimum elong	1162 Jan 27 j 00:46	13°♊53'24	0°39'39	direct	1169 Nov 14 j 10:56	11°♋53'34
max. Earth dist.	1162 Jan 28 j 00:34	13°♊56'51	20.96611 AU			
	1162 Feb 15 j 10:53	15°♊		conjunction	1170 Feb 27 j 18:40	15°♋45'58 0°-43'-50
retrograde	1162 May 16 j 12:28	17°♊54'51		minimum elong	1170 Feb 27 j 18:40	15°♋45'58 0°43'51
opposition	1162 Aug 02 j 14:20	15°♊55'54	0°-44'-32	max. Earth dist.	1170 Feb 28 j 16:26	15°♋49'05 21.06153 AU
min. Earth dist.	1162 Aug 01 j 15:12	15°♊58'12	18.98078 AU	retrograde	1170 Jun 18 j 08:57	19°♋47'51
	1162 Aug 26 j 21:36	15°♊♋		opposition	1170 Sep 04 j 08:22	17°♋48'37 0°-48'-12
direct	1162 Oct 17 j 15:24	13°♊59'09		min. Earth dist.	1170 Sep 03 j 12:31	17°♋50'37 19.05672 AU
	1162 Dec 06 j 04:51	15°♊		direct	1170 Nov 18 j 15:27	15°♋52'25
conjunction	1163 Jan 31 j 05:43	17°♊53'07	0°-40'-53	conjunction	1171 Mar 04 j 00:49	19°♋44'53 0°-43'-24
minimum elong	1163 Jan 31 j 05:43	17°♊53'07	0°40'54	minimum elong	1171 Mar 04 j 00:49	19°♋44'53 0°43'25
max. Earth dist.	1163 Feb 01 j 06:50	17°♊56'44	20.99374 AU	max. Earth dist.	1171 Mar 04 j 22:40	19°♋48'01 21.04991 AU
retrograde	1163 May 20 j 22:24	21°♊54'25		retrograde	1171 Jun 22 j 17:29	23°♋47'00
opposition	1163 Aug 06 j 23:32	19°♊55'30	0°-45'-47	opposition	1171 Sep 08 j 15:33	21°♋47'36 0°-47'-37
min. Earth dist.	1163 Aug 05 j 23:19	19°♊57'55	19.00662 AU	min. Earth dist.	1171 Sep 07 j 19:30	21°♋49'38 19.04264 AU
direct	1163 Oct 21 j 23:01	17°♊58'56		direct	1171 Nov 22 j 21:56	19°♋51'17
conjunction	1164 Feb 04 j 10:25	21°♊52'25	0°-41'-55	conjunction	1172 Mar 07 j 07:05	23°♋43'55 0°-42'-46
minimum elong	1164 Feb 04 j 10:25	21°♊52'25	0°41'56	minimum elong	1172 Mar 07 j 07:05	23°♋43'55 0°42'47
max. Earth dist.	1164 Feb 05 j 10:59	21°♊55'57	21.01775 AU	max. Earth dist.	1172 Mar 08 j 03:25	23°♋46'49 21.03358 AU
retrograde	1164 May 24 j 06:02	25°♊53'41		retrograde	1172 Jun 26 j 01:10	27°♋46'19
min. Earth dist.	1164 Aug 09 j 09:10	23°♊57'06	19.02875 AU	opposition	1172 Sep 11 j 22:45	25°♋46'45 0°-46'-47
opposition	1164 Aug 10 j 08:33	23°♊54'46	0°-46'-49	min. Earth dist.	1172 Sep 11 j 04:31	25°♋48'35 19.02420 AU
direct	1164 Oct 25 j 04:13	21°♊58'23		direct	1172 Nov 26 j 02:12	23°♋50'16
conjunction	1165 Feb 07 j 15:28	25°♊51'29	0°-42'-46	conjunction	1173 Mar 11 j 13:53	27°♋43'10 0°-41'-55
minimum elong	1165 Feb 07 j 15:28	25°♊51'29	0°42'47	minimum elong	1173 Mar 11 j 13:53	27°♋43'10 0°41'56
max. Earth dist.	1165 Feb 08 j 16:57	25°♊55'09	21.03780 AU	max. Earth dist.	1173 Mar 12 j 10:13	27°♋46'04 21.01316 AU
retrograde	1165 May 28 j 15:42	29°♊52'44			1173 Apr 22 j 22:04	0°♊
opposition	1165 Aug 14 j 16:53	27°♊53'51	0°-47'-38	retrograde	1173 Jun 30 j 10:18	1°♊45'54
min. Earth dist.	1165 Aug 13 j 16:51	27°♊56'15	19.04656 AU		1173 Sep 10 j 12:47	30°♊♋
direct	1165 Oct 29 j 11:41	25°♊57'36		min. Earth dist.	1173 Sep 15 j 11:10	29°♋48'02 19.00181 AU
				opposition	1173 Sep 16 j 05:33	29°♋46'10 0°-45'-45

direct	1173 Nov 30 j 08:30	27° <del>4</del> 49'33		min. Earth dist.	1181 Oct 18 j 09:27	2° <del>8</del> 12'39	18.69979 AU
	1174 Feb 12 j 22:11	0° <del>9</del>		direct	1182 Jan 01 j 08:51	0° <del>8</del> 13'40	
conjunction	1174 Mar 15 j 20:54	1° <del>9</del> 42'48	0°-40'-51	conjunction	1182 Apr 18 j 03:34	4° <del>8</del> 13'08	0°-25'-37
minimum elong	1174 Mar 15 j 20:54	1° <del>9</del> 42'48	0°40'52	minimum elong	1182 Apr 18 j 03:34	4° <del>8</del> 13'08	0°25'38
max. Earth dist.	1174 Mar 16 j 15:40	1° <del>9</del> 45'29	20.98895 AU	max. Earth dist.	1182 Apr 18 j 11:12	4° <del>8</del> 14'13	20.67292 AU
retrograde	1174 Jul 04 j 18:13	5° <del>9</del> 45'57		retrograde	1182 Aug 07 j 09:45	8° <del>8</del> 21'20	
opposition	1174 Sep 20 j 12:39	3° <del>9</del> 46'04	0°-44'-28	opposition	1182 Oct 23 j 02:47	6° <del>8</del> 20'33	0°-26'-52
min. Earth dist.	1174 Sep 19 j 20:05	3° <del>9</del> 47'45	18.97591 AU	min. Earth dist.	1182 Oct 22 j 20:59	6° <del>8</del> 21'09	18.64509 AU
direct	1174 Dec 04 j 12:30	1° <del>9</del> 49'17		direct	1183 Jan 05 j 15:23	4° <del>8</del> 22'07	
conjunction	1175 Mar 20 j 04:23	5° <del>9</del> 42'59	0°-39'-36	conjunction	1183 Apr 22 j 16:42	8° <del>8</del> 22'40	0°-22'-57
minimum elong	1175 Mar 20 j 04:23	5° <del>9</del> 42'59	0°39'37	minimum elong	1183 Apr 22 j 16:42	8° <del>8</del> 22'40	0°22'57
max. Earth dist.	1175 Mar 20 j 23:04	5° <del>9</del> 45'39	20.96146 AU	max. Earth dist.	1183 Apr 22 j 22:45	8° <del>8</del> 23'32	20.61653 AU
retrograde	1175 Jul 09 j 04:32	9° <del>9</del> 46'36		retrograde	1183 Aug 12 j 00:32	12° <del>8</del> 31'37	
opposition	1175 Sep 24 j 19:39	7° <del>9</del> 46'34	0°-42'-59	opposition	1183 Oct 27 j 11:49	10° <del>8</del> 30'39	0°-23'-50
min. Earth dist.	1175 Sep 24 j 02:58	7° <del>9</del> 48'16	18.94669 AU	min. Earth dist.	1183 Oct 27 j 06:47	10° <del>8</del> 31'11	18.58690 AU
direct	1175 Dec 08 j 18:52	5° <del>9</del> 49'38		direct	1184 Jan 10 j 01:24	8° <del>8</del> 31'52	
conjunction	1176 Mar 23 j 12:27	9° <del>9</del> 43'54	0°-38'-9	conjunction	1184 Apr 26 j 06:41	12° <del>8</del> 33'35	0°-20'-9
minimum elong	1176 Mar 23 j 12:27	9° <del>9</del> 43'54	0°38'10	minimum elong	1184 Apr 26 j 06:41	12° <del>8</del> 33'35	0°20'10
max. Earth dist.	1176 Mar 24 j 05:24	9° <del>9</del> 46'19	20.93063 AU	max. Earth dist.	1184 Apr 26 j 10:30	12° <del>8</del> 34'07	20.55681 AU
retrograde	1176 Jul 12 j 13:06	13° <del>9</del> 48'02			1184 Jun 10 j 00:05	15° <del>8</del>	
opposition	1176 Sep 28 j 02:48	11° <del>9</del> 47'54	0°-41'-17	retrograde	1184 Aug 15 j 12:20	16° <del>8</del> 43'17	
min. Earth dist.	1176 Sep 27 j 12:10	11° <del>9</del> 49'23	18.91428 AU		1184 Oct 23 j 17:43	15° <del>8</del>	
direct	1176 Dec 11 j 23:13	9° <del>9</del> 50'48		opposition	1184 Oct 30 j 21:14	14° <del>8</del> 42'07	0°-20'-40
conjunction	1177 Mar 27 j 21:15	13° <del>9</del> 45'43	0°-36'-31	min. Earth dist.	1184 Oct 30 j 18:50	14° <del>8</del> 42'22	18.52585 AU
minimum elong	1177 Mar 27 j 21:15	13° <del>9</del> 45'43	0°36'33	direct	1185 Jan 13 j 08:57	12° <del>8</del> 42'57	
max. Earth dist.	1177 Mar 28 j 13:42	13° <del>9</del> 48'04	20.89672 AU		1185 Mar 30 j 15:33	15° <del>8</del>	
retrograde	1177 Jul 17 j 00:29	17° <del>9</del> 50'25		conjunction	1185 Apr 30 j 21:23	16° <del>8</del> 45'53	0°-17'-13
opposition	1177 Oct 02 j 10:02	15° <del>9</del> 50'11	0°-39'-22	minimum elong	1185 Apr 30 j 21:23	16° <del>8</del> 45'53	0°17'14
min. Earth dist.	1177 Oct 01 j 19:31	15° <del>9</del> 51'40	18.87864 AU	max. Earth dist.	1185 Apr 30 j 23:33	16° <del>8</del> 46'11	20.49475 AU
direct	1177 Dec 16 j 05:47	13° <del>9</del> 52'56		retrograde	1185 Aug 20 j 03:56	20° <del>8</del> 56'22	
conjunction	1178 Apr 01 j 06:24	17° <del>9</del> 48'36	0°-34'-41	opposition	1185 Nov 04 j 07:00	18° <del>8</del> 55'00	0°-17'-22
minimum elong	1178 Apr 01 j 06:24	17° <del>9</del> 48'36	0°34'42	min. Earth dist.	1185 Nov 04 j 05:16	18° <del>8</del> 55'11	18.46280 AU
max. Earth dist.	1178 Apr 01 j 21:00	17° <del>9</del> 50'41	20.85941 AU	direct	1186 Jan 17 j 20:01	16° <del>8</del> 55'26	
retrograde	1178 Jul 21 j 10:02	21° <del>9</del> 53'57		conjunction	1186 May 05 j 12:40	20° <del>8</del> 59'37	0°-14'-12
opposition	1178 Oct 06 j 17:41	19° <del>9</del> 53'37	0°-37'-15	minimum elong	1186 May 05 j 12:40	20° <del>8</del> 59'37	0°14'12
min. Earth dist.	1178 Oct 06 j 05:26	19° <del>9</del> 54'53	18.83963 AU	behind sun begin	1186 May 05 j 09:37	20° <del>8</del> 59'11	
direct	1178 Dec 20 j 10:53	17° <del>9</del> 56'13		behind sun end	1186 May 05 j 15:44	21° <del>8</del> 00'04	
conjunction	1179 Apr 05 j 16:34	21° <del>9</del> 52'42	0°-32'-41	max. Earth dist.	1186 May 05 j 13:04	20° <del>8</del> 59'41	20.43087 AU
minimum elong	1179 Apr 05 j 16:34	21° <del>9</del> 52'42	0°32'42	retrograde	1186 Aug 24 j 16:51	25° <del>8</del> 10'55	
max. Earth dist.	1179 Apr 06 j 06:18	21° <del>9</del> 54'40	20.81877 AU	opposition	1186 Nov 08 j 17:22	23° <del>8</del> 09'21	0°-13'-58
retrograde	1179 Jul 25 j 22:27	25° <del>9</del> 58'44		min. Earth dist.	1186 Nov 08 j 17:59	23° <del>8</del> 09'17	18.39835 AU
opposition	1179 Oct 11 j 01:22	23° <del>9</del> 58'19	0°-34'-56	direct	1187 Jan 22 j 05:00	21° <del>8</del> 09'23	
min. Earth dist.	1179 Oct 10 j 13:36	23° <del>9</del> 59'32	18.79707 AU	conjunction	1187 May 10 j 04:56	25° <del>8</del> 14'54	0°-11'-5
direct	1179 Dec 24 j 18:16	22° <del>9</del> 00'43		minimum elong	1187 May 10 j 04:56	25° <del>8</del> 14'54	0°11'06
conjunction	1180 Apr 09 j 03:26	25° <del>9</del> 58'08	0°-30'-30	behind sun begin	1187 May 09 j 23:58	25° <del>8</del> 14'11	
minimum elong	1180 Apr 09 j 03:26	25° <del>9</del> 58'08	0°30'31	behind sun end	1187 May 10 j 09:54	25° <del>8</del> 15'37	
max. Earth dist.	1180 Apr 09 j 14:53	25° <del>9</del> 59'47	20.77424 AU	max. Earth dist.	1187 May 10 j 03:34	25° <del>8</del> 14'43	20.36610 AU
	1180 Jul 15 j 10:13	0° <del>8</del>		retrograde	1187 Aug 29 j 09:02	29° <del>8</del> 27'00	
retrograde	1180 Jul 29 j 09:04	0° <del>8</del> 04'52		opposition	1187 Nov 13 j 03:58	27° <del>8</del> 25'16	0°-10'-27
	1180 Aug 12 j 11:45	30° <del>8</del> <del>9</del>		min. Earth dist.	1187 Nov 13 j 05:15	27° <del>8</del> 25'07	18.33329 AU
opposition	1180 Oct 14 j 09:35	28° <del>8</del> 04'22	0°-32'-25	direct	1188 Jan 26 j 17:08	25° <del>8</del> 24'53	
min. Earth dist.	1180 Oct 14 j 00:26	28° <del>8</del> 05'19	18.75051 AU	conjunction	1188 May 13 j 22:04	29° <del>8</del> 31'48	0°-7'-53
direct	1180 Dec 28 j 00:07	26° <del>8</del> 06'32		minimum elong	1188 May 13 j 22:05	29° <del>8</del> 31'48	0°07'54
	1181 Apr 12 j 04:54	0° <del>8</del>		behind sun begin	1188 May 13 j 16:02	29° <del>8</del> 30'56	
conjunction	1181 Apr 13 j 15:11	0° <del>8</del> 04'57	0°-28'-8	behind sun end	1188 May 14 j 04:07	29° <del>8</del> 32'40	
minimum elong	1181 Apr 13 j 15:11	0° <del>8</del> 04'57	0°28'08	max. Earth dist.	1188 May 13 j 19:08	29° <del>8</del> 31'23	20.30079 AU
max. Earth dist.	1181 Apr 14 j 01:12	0° <del>8</del> 06'23	20.72568 AU		1188 May 21 j 22:04	0° <del>8</del>	
retrograde	1181 Aug 02 j 22:34	4° <del>8</del> 12'24		retrograde	1188 Sep 01 j 23:13	3° <del>8</del> 44'43	
opposition	1181 Oct 18 j 17:54	2° <del>8</del> 11'47	0°-29'-44	opposition	1188 Nov 16 j 15:20	1° <del>8</del> 42'49	0°-6'-52
				min. Earth dist.	1188 Nov 16 j 18:48	1° <del>8</del> 42'27	18.26798 AU

	1189 Jan 03 j 22:56	30° $\text{R}\text{U}$		conjunction	1195 Jun 15 j 22:25	0° $\text{U}22'25$	0°15'23
direct	1189 Jan 30 j 03:50	29° $\text{U}42'04$		minimum elong	1195 Jun 15 j 22:25	0° $\text{U}22'25$	0°15'23
	1189 Feb 25 j 06:25	0° $\text{II}$		behind sun begin	1195 Jun 15 j 20:58	0° $\text{U}22'12$	
				behind sun end	1195 Jun 15 j 23:52	0° $\text{U}22'38$	
conjunction	1189 May 18 j 15:54	3° $\text{II}50'24$	0°-4'-38	max. Earth dist.	1195 Jun 15 j 06:12	0° $\text{U}19'59$	19.85700 AU
minimum elong	1189 May 18 j 15:55	3° $\text{II}50'24$	0°04'40	retrograde	1195 Oct 04 j 05:23	4° $\text{U}41'04$	
behind sun begin	1189 May 18 j 09:18	3° $\text{II}49'27$		opposition	1195 Dec 17 j 16:43	2° $\text{U}38'41$	0°18'52
behind sun end	1189 May 18 j 22:31	3° $\text{II}51'21$		min. Earth dist.	1195 Dec 18 j 06:19	2° $\text{U}37'12$	17.82632 AU
max. Earth dist.	1189 May 18 j 11:01	3° $\text{II}49'42$	20.23565 AU	direct	1196 Mar 01 j 14:09	0° $\text{U}35'24$	
retrograde	1189 Sep 06 j 16:06	8° $\text{II}04'09$					
opposition	1189 Nov 21 j 03:07	6° $\text{II}02'08$	0°-3'-13	conjunction	1196 Jun 19 j 22:38	4° $\text{U}54'25$	0°18'35
min. Earth dist.	1189 Nov 21 j 07:14	6° $\text{II}01'42$	18.20305 AU	minimum elong	1196 Jun 19 j 22:38	4° $\text{U}54'25$	0°18'35
direct	1190 Feb 03 j 17:02	4° $\text{II}01'00$		max. Earth dist.	1196 Jun 19 j 05:40	4° $\text{U}51'51$	19.79591 AU
				retrograde	1196 Oct 08 j 01:50	9° $\text{U}13'44$	
conjunction	1190 May 23 j 10:44	8° $\text{II}10'49$	0°-1'-18	opposition	1196 Dec 21 j 09:34	7° $\text{U}11'17$	0°22'23
minimum elong	1190 May 23 j 10:43	8° $\text{II}10'49$	0°01'19	min. Earth dist.	1196 Dec 22 j 00:37	7° $\text{U}09'39$	17.76581 AU
behind sun begin	1190 May 23 j 03:57	8° $\text{II}09'51$		direct	1197 Mar 06 j 08:42	5° $\text{U}07'38$	
behind sun end	1190 May 23 j 17:30	8° $\text{II}11'48$					
max. Earth dist.	1190 May 23 j 04:37	8° $\text{II}09'57$	20.17094 AU	conjunction	1197 Jun 24 j 23:06	9° $\text{U}28'04$	0°21'41
retrograde	1190 Sep 11 j 07:51	12° $\text{II}25'25$		minimum elong	1197 Jun 24 j 23:06	9° $\text{U}28'04$	0°21'40
asc. node	1190 Oct 11 j 21:25	12° $\text{II}01'40$		max. Earth dist.	1197 Jun 24 j 03:23	9° $\text{U}25'05$	19.73618 AU
opposition	1190 Nov 25 j 15:39	10° $\text{II}23'19$	0°00'27	retrograde	1197 Oct 12 j 22:40	13° $\text{U}48'04$	
min. Earth dist.	1190 Nov 25 j 21:47	10° $\text{II}22'39$	18.13872 AU	opposition	1197 Dec 26 j 03:02	11° $\text{U}45'31$	0°25'46
direct	1191 Feb 08 j 05:48	8° $\text{II}21'50$		min. Earth dist.	1197 Dec 26 j 19:29	11° $\text{U}43'44$	17.70713 AU
				direct	1198 Mar 11 j 04:13	9° $\text{U}41'27$	
conjunction	1191 May 28 j 06:23	12° $\text{II}33'09$	0°02'08	max. Earth dist.	1198 Jun 29 j 04:29	14° $\text{U}00'16$	19.67854 AU
minimum elong	1191 May 28 j 06:22	12° $\text{II}33'09$	0°02'08				
behind sun begin	1191 May 27 j 23:36	12° $\text{II}32'11$		conjunction	1198 Jun 30 j 00:28	14° $\text{U}03'18$	0°24'39
behind sun end	1191 May 28 j 13:08	12° $\text{II}34'08$		minimum elong	1198 Jun 30 j 00:28	14° $\text{U}03'18$	0°24'39
max. Earth dist.	1191 May 27 j 21:59	12° $\text{II}31'56$	20.10709 AU	retrograde	1198 Oct 17 j 20:21	18° $\text{U}23'53$	
retrograde	1191 Sep 16 j 01:35	16° $\text{II}48'37$		opposition	1198 Dec 30 j 21:03	16° $\text{U}21'16$	0°29'01
opposition	1191 Nov 30 j 04:47	14° $\text{II}46'27$	0°04'10	min. Earth dist.	1198 Dec 31 j 14:24	16° $\text{U}19'22$	17.65078 AU
min. Earth dist.	1191 Nov 30 j 11:49	14° $\text{II}45'41$	18.07521 AU	direct	1199 Mar 16 j 00:32	14° $\text{U}16'49$	
direct	1192 Feb 12 j 20:17	12° $\text{II}44'37$		max. Earth dist.	1199 Jul 04 j 03:51	18° $\text{U}36'35$	19.62366 AU
conjunction	1192 Jun 01 j 03:09	16° $\text{II}57'30$	0°05'29	conjunction	1199 Jul 05 j 02:15	18° $\text{U}40'01$	0°27'29
minimum elong	1192 Jun 01 j 03:09	16° $\text{II}57'30$	0°05'29	minimum elong	1199 Jul 05 j 02:14	18° $\text{U}40'01$	0°27'29
behind sun begin	1192 May 31 j 20:37	16° $\text{II}56'33$		retrograde	1199 Oct 22 j 17:52	23° $\text{U}01'10$	
behind sun end	1192 Jun 01 j 09:40	16° $\text{II}58'27$		opposition	1200 Jan 04 j 15:49	20° $\text{U}58'27$	0°32'05
max. Earth dist.	1192 May 31 j 17:38	16° $\text{II}56'06$	20.04379 AU	min. Earth dist.	1200 Jan 05 j 10:35	20° $\text{U}56'24$	17.59766 AU
retrograde	1192 Sep 19 j 19:10	21° $\text{II}13'47$		direct	1200 Mar 19 j 20:53	18° $\text{U}53'38$	
opposition	1192 Dec 03 j 18:38	19° $\text{II}11'35$	0°07'53	max. Earth dist.	1200 Jul 08 j 06:17	23° $\text{U}14'42$	19.57227 AU
min. Earth dist.	1192 Dec 04 j 03:43	19° $\text{II}10'36$	18.01221 AU				
direct	1193 Feb 16 j 11:07	17° $\text{II}09'26$		conjunction	1200 Jul 09 j 04:35	23° $\text{U}18'08$	0°30'09
				minimum elong	1200 Jul 09 j 04:34	23° $\text{U}18'07$	0°30'10
conjunction	1193 Jun 06 j 00:41	21° $\text{II}23'52$	0°08'49	retrograde	1200 Oct 26 j 16:56	27° $\text{U}39'46$	
minimum elong	1193 Jun 06 j 00:41	21° $\text{II}23'52$	0°08'50	opposition	1201 Jan 08 j 11:11	25° $\text{U}37'00$	0°34'58
behind sun begin	1193 Jun 05 j 18:53	21° $\text{II}23'01$		min. Earth dist.	1201 Jan 09 j 06:10	25° $\text{U}34'55$	17.54827 AU
behind sun end	1193 Jun 06 j 06:29	21° $\text{II}24'42$		direct	1201 Mar 24 j 19:09	23° $\text{U}31'51$	
max. Earth dist.	1193 Jun 05 j 12:27	21° $\text{II}22'03$	19.98112 AU	max. Earth dist.	1201 Jul 13 j 07:13	27° $\text{U}53'52$	19.52504 AU
retrograde	1193 Sep 24 j 14:06	25° $\text{II}40'59$					
opposition	1193 Dec 08 j 09:16	23° $\text{II}38'43$	0°11'36	conjunction	1201 Jul 14 j 07:12	27° $\text{U}57'33$	0°32'37
min. Earth dist.	1193 Dec 08 j 19:33	23° $\text{II}37'37$	17.94983 AU	minimum elong	1201 Jul 14 j 07:12	27° $\text{U}57'33$	0°32'37
direct	1194 Feb 21 j 03:23	21° $\text{II}36'13$			1201 Aug 17 j 14:39	0° $\text{U}$	
				retrograde	1201 Oct 31 j 14:35	2° $\text{U}19'39$	
conjunction	1194 Jun 10 j 23:07	25° $\text{II}52'12$	0°12'07	opposition	1202 Jan 13 j 07:18	0° $\text{U}16'51$	0°37'37
minimum elong	1194 Jun 10 j 23:07	25° $\text{II}52'12$	0°12'07	min. Earth dist.	1202 Jan 14 j 03:31	0° $\text{U}14'38$	17.50358 AU
behind sun begin	1194 Jun 10 j 18:38	25° $\text{II}51'32$			1202 Jan 19 j 17:36	30° $\text{R}\text{U}$	
behind sun end	1194 Jun 11 j 03:36	25° $\text{II}52'51$		direct	1202 Mar 29 j 15:58	28° $\text{U}11'24$	
max. Earth dist.	1194 Jun 10 j 09:56	25° $\text{II}50'13$	19.91881 AU		1202 Jun 03 j 21:15	0° $\text{U}$	
	1194 Sep 09 j 23:12	0° $\text{U}$		max. Earth dist.	1202 Jul 18 j 10:32	2° $\text{U}34'35$	19.48279 AU
retrograde	1194 Sep 29 j 09:15	0° $\text{U}10'06$					
	1194 Oct 18 j 22:54	30° $\text{R}\text{II}$		conjunction	1202 Jul 19 j 10:12	2° $\text{U}38'15$	0°34'54
opposition	1194 Dec 13 j 00:43	28° $\text{II}07'47$	0°15'16	minimum elong	1202 Jul 19 j 10:12	2° $\text{U}38'15$	0°34'53
min. Earth dist.	1194 Dec 13 j 12:51	28° $\text{II}06'29$	17.88774 AU	retrograde	1202 Nov 05 j 14:46	7° $\text{U}00'45$	
direct	1195 Feb 25 j 20:02	26° $\text{II}04'55$		opposition	1203 Jan 18 j 03:59	4° $\text{U}57'57$	0°40'02
	1195 Jun 09 j 17:49	0° $\text{U}$		min. Earth dist.	1203 Jan 18 j 23:51	4° $\text{U}55'46$	17.46389 AU

direct	1203 Apr 03 j 16:10	2°♏52'16		retrograde	1210 Dec 13 j 13:18	15°♑02'22	
				opposition	1211 Feb 24 j 22:30	13°♑00'18	0°48'52
conjunction	1203 Jul 24 j 13:38	7°♏20'10	0°36'56	min. Earth dist.	1211 Feb 25 j 19:02	12°♑58'04	17.33299 AU
minimum elong	1203 Jul 24 j 13:38	7°♏20'10	0°36'57	direct	1211 May 12 j 07:34	10°♑54'02	
max. Earth dist.	1203 Jul 23 j 12:56	7°♏16'20	19.44576 AU				
retrograde	1203 Nov 10 j 12:30	11°♏43'00		conjunction	1211 Sep 01 j 20:24	15°♑25'58	0°43'42
opposition	1204 Jan 23 j 01:21	9°♏40'15	0°42'12	minimum elong	1211 Sep 01 j 20:24	15°♑25'58	0°43'42
min. Earth dist.	1204 Jan 23 j 22:24	9°♏37'57	17.42974 AU	max. Earth dist.	1211 Aug 31 j 21:14	15°♑22'19	19.33428 AU
direct	1204 Apr 07 j 14:22	7°♏34'23		retrograde	1211 Dec 18 j 13:01	19°♑48'51	
				opposition	1212 Feb 29 j 23:38	17°♑46'50	0°48'30
conjunction	1204 Jul 28 j 17:21	12°♏03'16	0°38'45	min. Earth dist.	1212 Mar 01 j 20:19	17°♑44'36	17.33765 AU
minimum elong	1204 Jul 28 j 17:20	12°♏03'16	0°38'44	direct	1212 May 16 j 10:28	15°♑40'36	
max. Earth dist.	1204 Jul 27 j 16:49	11°♏59'28	19.41442 AU				
	1204 Sep 18 j 06:45	15°♏		conjunction	1212 Sep 05 j 23:09	20°♑12'20	0°43'12
retrograde	1204 Nov 14 j 13:10	16°♏26'24		minimum elong	1212 Sep 05 j 23:09	20°♑12'20	0°43'12
	1205 Jan 12 j 23:03	15°♑♏		max. Earth dist.	1212 Sep 04 j 23:39	20°♑08'38	19.34148 AU
opposition	1205 Jan 26 j 23:19	14°♏23'44	0°44'05	retrograde	1212 Dec 22 j 12:52	24°♑34'51	
min. Earth dist.	1205 Jan 27 j 19:39	14°♏21'30	17.40113 AU	opposition	1213 Mar 06 j 00:51	22°♑32'53	0°47'47
direct	1205 Apr 12 j 16:29	12°♏17'46		min. Earth dist.	1213 Mar 06 j 20:18	22°♑30'47	17.34738 AU
	1205 Jul 04 j 08:40	15°♏		direct	1213 May 21 j 14:17	20°♑26'39	
				max. Earth dist.	1213 Sep 10 j 04:06	24°♑54'44	19.35377 AU
conjunction	1205 Aug 02 j 21:06	16°♏47'29	0°40'19				
minimum elong	1205 Aug 02 j 21:06	16°♏47'29	0°40'19	conjunction	1213 Sep 11 j 01:20	24°♑58'04	0°42'25
max. Earth dist.	1205 Aug 01 j 20:23	16°♏43'38	19.38849 AU	minimum elong	1213 Sep 11 j 01:20	24°♑58'04	0°42'25
retrograde	1205 Nov 19 j 11:16	21°♏10'51		retrograde	1213 Dec 27 j 12:06	29°♑20'09	
opposition	1206 Jan 31 j 22:01	19°♏08'17	0°45'41	opposition	1214 Mar 11 j 02:11	27°♑18'14	0°46'44
min. Earth dist.	1206 Feb 01 j 19:32	19°♏05'56	17.37795 AU	min. Earth dist.	1214 Mar 11 j 21:01	27°♑16'11	17.36220 AU
direct	1206 Apr 17 j 16:13	17°♏02'14		direct	1214 May 26 j 18:00	25°♑12'04	
max. Earth dist.	1206 Aug 07 j 00:11	21°♏28'48	19.36790 AU	max. Earth dist.	1214 Sep 15 j 05:47	29°♑39'42	19.37135 AU
conjunction	1206 Aug 08 j 01:08	21°♏32'42	0°41'36	conjunction	1214 Sep 16 j 02:50	29°♑43'01	0°41'20
minimum elong	1206 Aug 08 j 01:08	21°♏32'42	0°41'36	minimum elong	1214 Sep 16 j 02:50	29°♑43'01	0°41'19
retrograde	1206 Nov 24 j 12:27	25°♏56'12			1214 Sep 20 j 14:47	0°♏	
opposition	1207 Feb 05 j 21:00	23°♏53'46	0°46'59	retrograde	1215 Jan 01 j 10:35	4°♏04'35	
min. Earth dist.	1207 Feb 06 j 17:45	23°♏51'30	17.35980 AU	opposition	1215 Mar 16 j 03:20	2°♏02'43	0°45'22
direct	1207 Apr 22 j 20:03	21°♏47'39		min. Earth dist.	1215 Mar 16 j 20:57	2°♏00'49	17.38261 AU
max. Earth dist.	1207 Aug 12 j 04:44	26°♏14'52	19.35203 AU		1215 May 20 j 15:24	30°♑♑	
				direct	1215 May 31 j 21:37	29°♑56'39	
conjunction	1207 Aug 13 j 05:24	26°♏18'44	0°42'37		1215 Jun 12 j 04:02	0°♏	
minimum elong	1207 Aug 13 j 05:24	26°♏18'44	0°42'37	max. Earth dist.	1215 Sep 20 j 09:17	4°♏24'06	19.39461 AU
	1207 Oct 21 j 08:58	0°♑					
retrograde	1207 Nov 29 j 11:20	0°♑42'17		conjunction	1215 Sep 21 j 03:49	4°♏27'01	0°39'58
	1208 Jan 08 j 13:27	30°♑♏		minimum elong	1215 Sep 21 j 03:49	4°♏27'01	0°39'58
opposition	1208 Feb 10 j 20:53	28°♏39'57	0°47'57	retrograde	1216 Jan 06 j 09:13	8°♏48'02	
min. Earth dist.	1208 Feb 11 j 18:45	28°♏37'34	17.34633 AU	opposition	1216 Mar 20 j 04:42	6°♏46'17	0°43'42
direct	1208 Apr 26 j 21:15	26°♏33'48		min. Earth dist.	1216 Mar 20 j 20:50	6°♏44'33	17.40864 AU
	1208 Jul 30 j 21:09	0°♑		direct	1216 Jun 05 j 01:38	4°♏40'24	
max. Earth dist.	1208 Aug 16 j 08:10	1°♑01'21	19.34086 AU	max. Earth dist.	1216 Sep 24 j 10:09	9°♏07'16	19.42362 AU
conjunction	1208 Aug 17 j 09:22	1°♑05'18	0°43'20	conjunction	1216 Sep 25 j 03:49	9°♏10'03	0°38'21
minimum elong	1208 Aug 17 j 09:22	1°♑05'18	0°43'21	minimum elong	1216 Sep 25 j 03:49	9°♏10'03	0°38'21
retrograde	1208 Dec 03 j 12:38	5°♑28'51		retrograde	1217 Jan 10 j 06:56	13°♏30'30	
opposition	1209 Feb 14 j 21:03	3°♑26'37	0°48'36	opposition	1217 Mar 25 j 05:56	11°♏28'52	0°41'45
min. Earth dist.	1209 Feb 15 j 17:55	3°♑24'20	17.33740 AU	min. Earth dist.	1217 Mar 25 j 20:46	11°♏27'16	17.44058 AU
direct	1209 May 02 j 01:30	1°♑20'24		direct	1217 Jun 10 j 04:22	9°♏23'12	
conjunction	1209 Aug 22 j 13:23	5°♑52'13	0°43'46	conjunction	1217 Sep 30 j 03:20	13°♏52'04	0°36'29
minimum elong	1209 Aug 22 j 13:23	5°♑52'13	0°43'45	minimum elong	1217 Sep 30 j 03:20	13°♏52'04	0°36'28
max. Earth dist.	1209 Aug 21 j 13:13	5°♑48'25	19.33410 AU	max. Earth dist.	1217 Sep 29 j 12:06	13°♏49'41	19.45844 AU
retrograde	1209 Dec 08 j 12:21	10°♑15'37		retrograde	1218 Jan 15 j 05:02	18°♏11'54	
opposition	1210 Feb 19 j 21:40	8°♑13'28	0°48'54	opposition	1218 Mar 30 j 06:51	16°♏10'27	0°39'31
min. Earth dist.	1210 Feb 20 j 19:17	8°♑11'07	17.33292 AU	min. Earth dist.	1218 Mar 30 j 19:43	16°♏09'04	17.47794 AU
direct	1210 May 07 j 03:32	6°♑07'14		direct	1218 Jun 15 j 08:07	14°♏05'04	
conjunction	1210 Aug 27 j 16:59	10°♑39'10	0°43'53	conjunction	1218 Oct 05 j 02:05	18°♏33'04	0°34'22
minimum elong	1210 Aug 27 j 16:59	10°♑39'10	0°43'53	minimum elong	1218 Oct 05 j 02:05	18°♏33'04	0°34'23
max. Earth dist.	1210 Aug 26 j 16:10	10°♑35'16	19.33194 AU	max. Earth dist.	1218 Oct 04 j 12:05	18°♏30'52	19.49843 AU

retrograde	1219 Jan 20 j 01:51	22° <del>♄</del> 52'16		direct	1226 Jul 23 j 12:24	20° <del>♍</del> 53'47	
opposition	1219 Apr 04 j 07:50	20° <del>♄</del> 51'00	0°37'03				
min. Earth dist.	1219 Apr 04 j 19:43	20° <del>♄</del> 49'44	17.52033 AU	conjunction	1226 Nov 10 j 10:41	25° <del>♍</del> 11'37	0°11'21
direct	1219 Jun 20 j 09:43	18° <del>♄</del> 45'57		minimum elong	1226 Nov 10 j 10:41	25° <del>♍</del> 11'37	0°11'21
				behind sun begin	1226 Nov 10 j 05:49	25° <del>♍</del> 10'54	
conjunction	1219 Oct 10 j 00:02	23° <del>♄</del> 12'58	0°32'03	behind sun end	1226 Nov 10 j 15:32	25° <del>♍</del> 12'21	
minimum elong	1219 Oct 10 j 00:02	23° <del>♄</del> 12'58	0°32'03	max. Earth dist.	1226 Nov 10 j 11:04	25° <del>♍</del> 11'41	19.93095 AU
max. Earth dist.	1219 Oct 09 j 12:09	23° <del>♄</del> 11'07	19.54310 AU	retrograde	1227 Feb 25 j 13:00	29° <del>♍</del> 24'26	
retrograde	1220 Jan 24 j 23:38	27° <del>♄</del> 31'29		opposition	1227 May 12 j 02:59	27° <del>♍</del> 24'22	0°10'45
opposition	1220 Apr 08 j 08:33	25° <del>♄</del> 30'26	0°34'20	min. Earth dist.	1227 May 12 j 02:21	27° <del>♍</del> 24'26	17.96128 AU
min. Earth dist.	1220 Apr 08 j 18:07	25° <del>♄</del> 29'25	17.56689 AU	direct	1227 Jul 28 j 09:08	25° <del>♍</del> 22'03	
direct	1220 Jun 24 j 12:53	23° <del>♄</del> 25'45					
				conjunction	1227 Nov 15 j 01:28	29° <del>♍</del> 38'21	0°08'02
conjunction	1220 Oct 13 j 21:15	27° <del>♄</del> 51'41	0°29'32	minimum elong	1227 Nov 15 j 01:28	29° <del>♍</del> 38'21	0°08'02
minimum elong	1220 Oct 13 j 21:15	27° <del>♄</del> 51'41	0°29'32	behind sun begin	1227 Nov 14 j 19:35	29° <del>♍</del> 37'28	
max. Earth dist.	1220 Oct 13 j 11:03	27° <del>♄</del> 50'06	19.59158 AU	behind sun end	1227 Nov 15 j 07:20	29° <del>♍</del> 39'13	
	1220 Nov 18 j 13:04	0° <del>♍</del>		max. Earth dist.	1227 Nov 15 j 02:56	29° <del>♍</del> 38'33	19.99235 AU
retrograde	1221 Jan 28 j 19:31	2° <del>♍</del> 09'30			1227 Nov 20 j 22:41	0° <del>♊</del>	
opposition	1221 Apr 13 j 09:06	0° <del>♍</del> 08'39	0°31'25	retrograde	1228 Mar 01 j 06:23	3° <del>♊</del> 50'16	
min. Earth dist.	1221 Apr 13 j 17:59	0° <del>♍</del> 07'43	17.61714 AU	opposition	1228 May 15 j 23:53	1° <del>♊</del> 50'15	0°07'01
	1221 Apr 16 j 19:06	30° <del>♋</del>		min. Earth dist.	1228 May 15 j 20:26	1° <del>♊</del> 50'36	18.02334 AU
direct	1221 Jun 29 j 12:52	28° <del>♋</del> 04'19			1228 Jul 10 j 14:26	30° <del>♋</del>	
	1221 Sep 06 j 10:50	0° <del>♍</del>		direct	1228 Aug 01 j 07:50	29° <del>♍</del> 48'15	
					1228 Aug 22 j 16:41	0° <del>♊</del>	
conjunction	1221 Oct 18 j 17:36	2° <del>♍</del> 29'06	0°26'50				
minimum elong	1221 Oct 18 j 17:36	2° <del>♍</del> 29'06	0°26'49	conjunction	1228 Nov 18 j 15:34	4° <del>♊</del> 03'00	0°04'42
max. Earth dist.	1221 Oct 18 j 09:00	2° <del>♍</del> 27'46	19.64340 AU	minimum elong	1228 Nov 18 j 15:34	4° <del>♊</del> 03'00	0°04'42
retrograde	1222 Feb 02 j 17:04	6° <del>♍</del> 46'09		behind sun begin	1228 Nov 18 j 09:09	4° <del>♊</del> 02'02	
opposition	1222 Apr 18 j 09:11	4° <del>♍</del> 45'30	0°28'18	behind sun end	1228 Nov 18 j 21:59	4° <del>♊</del> 03'57	
min. Earth dist.	1222 Apr 18 j 15:36	4° <del>♍</del> 44'49	17.67018 AU	max. Earth dist.	1228 Nov 18 j 20:03	4° <del>♊</del> 03'39	20.05505 AU
direct	1222 Jul 04 j 15:03	2° <del>♍</del> 41'32		retrograde	1229 Mar 05 j 20:44	8° <del>♊</del> 14'02	
				opposition	1229 May 20 j 20:05	6° <del>♊</del> 14'05	0°03'18
conjunction	1222 Oct 23 j 13:13	7° <del>♍</del> 05'03	0°23'58	min. Earth dist.	1229 May 20 j 15:34	6° <del>♊</del> 14'32	18.08680 AU
minimum elong	1222 Oct 23 j 13:13	7° <del>♍</del> 05'03	0°23'57	direct	1229 Aug 06 j 03:22	4° <del>♊</del> 12'24	
max. Earth dist.	1222 Oct 23 j 06:33	7° <del>♍</del> 04'01	19.69762 AU				
retrograde	1223 Feb 07 j 11:36	11° <del>♍</del> 21'19		conjunction	1229 Nov 23 j 04:37	8° <del>♊</del> 25'37	0°01'19
opposition	1223 Apr 23 j 09:01	9° <del>♍</del> 20'50	0°25'01	minimum elong	1229 Nov 23 j 04:36	8° <del>♊</del> 25'37	0°01'19
min. Earth dist.	1223 Apr 23 j 14:56	9° <del>♍</del> 20'13	17.72549 AU	behind sun begin	1229 Nov 22 j 22:03	8° <del>♊</del> 24'39	
direct	1223 Jul 09 j 13:31	7° <del>♍</del> 17'13		behind sun end	1229 Nov 23 j 11:09	8° <del>♊</del> 26'35	
				max. Earth dist.	1229 Nov 23 j 10:03	8° <del>♊</del> 26'25	20.11927 AU
conjunction	1223 Oct 28 j 07:57	11° <del>♍</del> 39'25	0°20'57	retrograde	1230 Mar 10 j 12:26	12° <del>♊</del> 35'48	
minimum elong	1223 Oct 28 j 07:57	11° <del>♍</del> 39'25	0°20'58	desc. node	1230 Apr 13 j 19:21	12° <del>♊</del> 06'45	
max. Earth dist.	1223 Oct 28 j 02:28	11° <del>♍</del> 38'35	19.75395 AU	opposition	1230 May 25 j 15:31	10° <del>♊</del> 35'56	0°00'-24
	1223 Dec 28 j 21:30	15° <del>♍</del>		min. Earth dist.	1230 May 25 j 08:16	10° <del>♊</del> 36'41	18.15170 AU
retrograde	1224 Feb 12 j 08:43	15° <del>♍</del> 54'52		direct	1230 Aug 10 j 23:07	8° <del>♊</del> 34'37	
	1224 Mar 30 j 17:54	15° <del>♋</del>					
opposition	1224 Apr 27 j 08:21	13° <del>♍</del> 54'31	0°21'35	conjunction	1230 Nov 27 j 16:55	12° <del>♊</del> 46'20	0°-2'-6
min. Earth dist.	1224 Apr 27 j 11:37	13° <del>♍</del> 54'11	17.78256 AU	minimum elong	1230 Nov 27 j 16:56	12° <del>♊</del> 46'20	0°02'06
direct	1224 Jul 13 j 14:38	11° <del>♍</del> 51'15		behind sun begin	1230 Nov 27 j 10:23	12° <del>♊</del> 45'22	
	1224 Oct 12 j 10:38	15° <del>♍</del>		behind sun end	1230 Nov 27 j 23:28	12° <del>♊</del> 47'18	
				max. Earth dist.	1230 Nov 28 j 01:24	12° <del>♊</del> 47'36	20.18467 AU
conjunction	1224 Nov 01 j 01:44	16° <del>♍</del> 12'03	0°17'50	retrograde	1231 Mar 15 j 02:05	16° <del>♊</del> 55'42	
minimum elong	1224 Nov 01 j 01:44	16° <del>♍</del> 12'03	0°17'49	opposition	1231 May 30 j 10:26	14° <del>♊</del> 55'57	0°-4'-5
max. Earth dist.	1224 Oct 31 j 22:34	16° <del>♍</del> 11'34	19.81172 AU	min. Earth dist.	1231 May 30 j 01:55	14° <del>♊</del> 56'50	18.21754 AU
retrograde	1225 Feb 16 j 01:55	20° <del>♍</del> 26'39		direct	1231 Aug 15 j 17:06	12° <del>♊</del> 55'02	
opposition	1225 May 02 j 07:17	18° <del>♍</del> 26'26	0°18'03				
min. Earth dist.	1225 May 02 j 10:00	18° <del>♍</del> 26'09	17.84099 AU	conjunction	1231 Dec 02 j 04:22	17° <del>♊</del> 05'15	0°-5'-24
direct	1225 Jul 18 j 12:10	16° <del>♍</del> 23'30		minimum elong	1231 Dec 02 j 04:22	17° <del>♊</del> 05'15	0°05'25
				behind sun begin	1231 Dec 01 j 22:02	17° <del>♊</del> 04'20	
conjunction	1225 Nov 05 j 18:37	20° <del>♍</del> 42'50	0°14'37	behind sun end	1231 Dec 02 j 10:41	17° <del>♊</del> 06'11	
minimum elong	1225 Nov 05 j 18:38	20° <del>♍</del> 42'50	0°14'38	max. Earth dist.	1231 Dec 02 j 13:39	17° <del>♊</del> 06'39	20.25095 AU
behind sun begin	1225 Nov 05 j 15:42	20° <del>♍</del> 42'23		retrograde	1232 Mar 18 j 16:29	21° <del>♊</del> 13'50	
behind sun end	1225 Nov 05 j 21:34	20° <del>♍</del> 43'16		opposition	1232 Jun 03 j 04:36	19° <del>♊</del> 14'14	0°-7'-43
max. Earth dist.	1225 Nov 05 j 16:24	20° <del>♍</del> 42'30	19.87083 AU	min. Earth dist.	1232 Jun 02 j 17:42	19° <del>♊</del> 15'21	18.28408 AU
retrograde	1226 Feb 20 j 21:13	24° <del>♍</del> 56'32		direct	1232 Aug 19 j 10:09	17° <del>♊</del> 13'42	
opposition	1226 May 07 j 05:17	22° <del>♍</del> 56'24	0°14'26				
min. Earth dist.	1226 May 07 j 05:23	22° <del>♍</del> 56'23	17.90058 AU	conjunction	1232 Dec 05 j 15:09	21° <del>♊</del> 22'29	0°-8'-38

minimum elong	1232 Dec 05 j 15:10	21° $\overline{22}$ '29	0°08'38	opposition	1240 Jul 08 j 07:01	22° $\overline{34}$ '45	0°-33'00
behind sun begin	1232 Dec 05 j 09:26	21° $\overline{21}$ '39		direct	1240 Sep 22 j 21:21	20° $\overline{34}$ '52	
behind sun end	1232 Dec 05 j 20:53	21° $\overline{23}$ '20					
max. Earth dist.	1232 Dec 06 j 03:20	21° $\overline{24}$ '19	20.31743 AU	conjunction	1241 Jan 07 j 08:38	24° $\overline{34}$ '38	0°-30'-57
retrograde	1233 Mar 23 j 05:38	25° $\overline{23}$ '01		minimum elong	1241 Jan 07 j 08:38	24° $\overline{34}$ '38	0°30'59
opposition	1233 Jun 07 j 22:11	23° $\overline{23}$ '52	0°-11'-17	max. Earth dist.	1241 Jan 08 j 05:42	24° $\overline{34}$ '43	20.77808 AU
min. Earth dist.	1233 Jun 07 j 10:06	23° $\overline{32}$ '06	18.35035 AU	retrograde	1241 Apr 26 j 01:22	28° $\overline{34}$ '38	
direct	1233 Aug 24 j 02:31	21° $\overline{23}$ '45		opposition	1241 Jul 12 j 19:17	26° $\overline{35}$ '45	0°-35'-27
				min. Earth dist.	1241 Jul 11 j 22:39	26° $\overline{35}$ '49	18.80033 AU
conjunction	1233 Dec 10 j 01:14	25° $\overline{23}$ '07	0°-11'-48	direct	1241 Sep 27 j 08:48	24° $\overline{35}$ '04	
minimum elong	1233 Dec 10 j 01:13	25° $\overline{23}$ '07	0°11'49				
behind sun begin	1233 Dec 09 j 20:34	25° $\overline{23}$ '27		conjunction	1242 Jan 11 j 14:26	28° $\overline{35}$ '49	0°-33'-6
behind sun end	1233 Dec 10 j 05:52	25° $\overline{23}$ '48		minimum elong	1242 Jan 11 j 14:25	28° $\overline{35}$ '49	0°33'07
max. Earth dist.	1233 Dec 10 j 13:52	25° $\overline{24}$ '01	20.38337 AU	max. Earth dist.	1242 Jan 12 j 11:24	28° $\overline{35}$ '53	20.82148 AU
retrograde	1234 Mar 27 j 19:00	29° $\overline{24}$ '51			1242 Jan 31 j 13:54	0° $\approx$	
opposition	1234 Jun 12 j 14:58	27° $\overline{24}$ '56	0°-14'-46	retrograde	1242 Apr 30 j 10:42	2° $\approx$ 53'23	
min. Earth dist.	1234 Jun 12 j 01:06	27° $\overline{24}$ '20	18.41585 AU	min. Earth dist.	1242 Jul 16 j 09:56	0° $\approx$ 56'34	18.84246 AU
direct	1234 Aug 28 j 17:35	25° $\overline{24}$ '13		opposition	1242 Jul 17 j 06:56	0° $\approx$ 54'28	0°-37'-43
					1242 Aug 09 j 21:02	30° $\overline{35}$	
conjunction	1234 Dec 14 j 10:51	29° $\overline{24}$ '14	0°-14'-53	direct	1242 Oct 01 j 16:53	28° $\overline{35}$ '59	
minimum elong	1234 Dec 14 j 10:51	29° $\overline{24}$ '14	0°14'54		1242 Nov 21 j 05:19	0° $\approx$	
behind sun begin	1234 Dec 14 j 08:08	29° $\overline{24}$ '51					
behind sun end	1234 Dec 14 j 13:34	29° $\overline{24}$ '52		conjunction	1243 Jan 15 j 20:04	2° $\approx$ 53'48	0°-35'-4
max. Earth dist.	1234 Dec 15 j 02:01	29° $\overline{24}$ '54	20.44809 AU	minimum elong	1243 Jan 15 j 20:04	2° $\approx$ 53'48	0°35'05
	1234 Dec 16 j 14:44	0° $\overline{35}$		max. Earth dist.	1243 Jan 16 j 18:58	2° $\approx$ 57'08	20.86219 AU
retrograde	1235 Apr 01 j 07:16	3° $\overline{35}$ '40		retrograde	1243 May 04 j 20:06	6° $\approx$ 55'59	
opposition	1235 Jun 17 j 07:19	1° $\overline{35}$ '30	0°-18'-9	opposition	1243 Jul 21 j 18:01	4° $\approx$ 57'04	0°-39'-47
min. Earth dist.	1235 Jun 16 j 16:21	2° $\overline{36}$ '01	18.47968 AU	min. Earth dist.	1243 Jul 20 j 19:42	4° $\approx$ 59'17	18.88183 AU
direct	1235 Sep 02 j 08:26	0° $\overline{36}$ '11		direct	1243 Oct 06 j 03:13	2° $\approx$ 59'46	
conjunction	1235 Dec 18 j 19:38	4° $\overline{36}$ '52	0°-17'-53	conjunction	1244 Jan 20 j 01:12	6° $\approx$ 55'44	0°-36'-51
minimum elong	1235 Dec 18 j 19:38	4° $\overline{36}$ '52	0°17'54	minimum elong	1244 Jan 20 j 01:11	6° $\approx$ 55'44	0°36'52
max. Earth dist.	1235 Dec 19 j 11:01	4° $\overline{37}$ '09	20.51090 AU	max. Earth dist.	1244 Jan 20 j 23:55	6° $\approx$ 59'03	20.90021 AU
retrograde	1236 Apr 04 j 19:58	8° $\overline{37}$ '40		retrograde	1244 May 08 j 05:19	10° $\approx$ 57'37	
opposition	1236 Jun 20 j 23:03	6° $\overline{37}$ '13	0°-21'-25	min. Earth dist.	1244 Jul 24 j 06:12	9° $\approx$ 00'56	18.91858 AU
min. Earth dist.	1236 Jun 20 j 06:48	6° $\overline{37}$ '15	18.54140 AU	opposition	1244 Jul 25 j 04:38	8° $\approx$ 58'41	0°-41'-39
direct	1236 Sep 05 j 21:59	4° $\overline{37}$ '23		direct	1244 Oct 09 j 10:01	7° $\approx$ 01'35	
conjunction	1236 Dec 22 j 04:12	8° $\overline{38}$ '04	0°-20'-46	conjunction	1245 Jan 23 j 06:23	10° $\approx$ 56'49	0°-38'-26
minimum elong	1236 Dec 22 j 04:12	8° $\overline{38}$ '04	0°20'48	minimum elong	1245 Jan 23 j 06:23	10° $\approx$ 56'49	0°38'26
max. Earth dist.	1236 Dec 22 j 21:44	8° $\overline{38}$ '40	20.57113 AU	max. Earth dist.	1245 Jan 24 j 06:43	11° $\approx$ 00'21	20.93545 AU
retrograde	1237 Apr 09 j 07:10	12° $\overline{38}$ '14		retrograde	1245 May 12 j 14:05	14° $\approx$ 58'25	
opposition	1237 Jun 25 j 13:54	10° $\overline{38}$ '22	0°-24'-33	opposition	1245 Jul 29 j 14:27	12° $\approx$ 59'31	0°-43'-18
min. Earth dist.	1237 Jun 24 j 20:44	10° $\overline{38}$ '24	18.60010 AU	min. Earth dist.	1245 Jul 28 j 14:55	13° $\approx$ 01'52	18.95227 AU
direct	1237 Sep 10 j 11:12	8° $\overline{38}$ '39		direct	1245 Oct 13 j 19:10	11° $\approx$ 02'37	
conjunction	1237 Dec 26 j 12:03	12° $\overline{38}$ '51	0°-23'-32	conjunction	1246 Jan 27 j 11:14	14° $\approx$ 57'11	0°-39'-51
minimum elong	1237 Dec 26 j 12:03	12° $\overline{38}$ '51	0°23'32	minimum elong	1246 Jan 27 j 11:14	14° $\approx$ 57'11	0°39'52
max. Earth dist.	1237 Dec 27 j 05:23	12° $\overline{38}$ '24	20.62815 AU	max. Earth dist.	1246 Jan 28 j 11:05	15° $\approx$ 00'38	20.96754 AU
retrograde	1238 Apr 13 j 18:46	16° $\overline{38}$ '30			1246 Jan 28 j 06:41	15° $\approx$	
min. Earth dist.	1238 Jun 29 j 10:20	14° $\overline{38}$ '33	18.65548 AU	retrograde	1246 May 16 j 23:21	18° $\approx$ 58'37	
opposition	1238 Jun 30 j 04:18	14° $\overline{38}$ '33	0°-27'-32	min. Earth dist.	1246 Aug 02 j 00:53	17° $\approx$ 02'03	18.98277 AU
direct	1238 Sep 14 j 23:06	12° $\overline{38}$ '32		opposition	1246 Aug 03 j 00:09	16° $\approx$ 59'43	0°-44'-44
				direct	1246 Oct 18 j 01:03	15° $\approx$ 03'01	
conjunction	1238 Dec 30 j 19:26	16° $\overline{38}$ '41	0°-26'-10	conjunction	1247 Jan 31 j 16:02	18° $\approx$ 57'00	0°-41'-3
minimum elong	1238 Dec 30 j 19:26	16° $\overline{38}$ '41	0°26'11	minimum elong	1247 Jan 31 j 16:02	18° $\approx$ 57'00	0°41'04
max. Earth dist.	1238 Dec 31 j 14:43	16° $\overline{38}$ '02	20.68165 AU	max. Earth dist.	1247 Feb 01 j 17:17	19° $\approx$ 00'39	20.99623 AU
retrograde	1239 Apr 18 j 05:10	20° $\overline{38}$ '13		retrograde	1247 May 21 j 07:44	22° $\approx$ 58'18	
opposition	1239 Jul 04 j 18:01	18° $\overline{38}$ '39	0°-30'-21	min. Earth dist.	1247 Aug 06 j 09:12	21° $\approx$ 01'50	19.00950 AU
min. Earth dist.	1239 Jul 03 j 23:01	18° $\overline{38}$ '41	18.70712 AU	opposition	1247 Aug 07 j 09:23	20° $\approx$ 59'26	0°-45'-58
direct	1239 Sep 19 j 11:27	16° $\overline{38}$ '41		direct	1247 Oct 22 j 09:08	19° $\approx$ 02'54	
conjunction	1240 Jan 04 j 02:13	20° $\overline{38}$ '41	0°-28'-39	conjunction	1248 Feb 04 j 20:50	22° $\approx$ 56'24	0°-42'-4
minimum elong	1240 Jan 04 j 02:13	20° $\overline{38}$ '41	0°28'39	minimum elong	1248 Feb 04 j 20:50	22° $\approx$ 56'24	0°42'05
max. Earth dist.	1240 Jan 04 j 21:20	20° $\overline{38}$ '43	20.73153 AU	max. Earth dist.	1248 Feb 05 j 21:17	22° $\approx$ 59'55	21.02095 AU
retrograde	1240 Apr 21 j 15:31	24° $\overline{38}$ '43		retrograde	1248 May 24 j 16:40	26° $\approx$ 57'37	
min. Earth dist.	1240 Jul 07 j 11:32	22° $\overline{38}$ '47	18.75540 AU				



opposition	1248 Aug 10 j 18:17	24° <del>58</del> '46	0°-46'-58	opposition	1256 Sep 12 j 08:09	26° <del>48</del> '11	0°-46'-40
min. Earth dist.	1248 Aug 09 j 18:54	25° <del>01</del> '06	19.03218 AU	min. Earth dist.	1256 Sep 11 j 13:39	26° <del>50</del> '03	19.02823 AU
direct	1248 Oct 25 j 14:31	23° <del>02</del> '24		direct	1256 Nov 26 j 11:47	24° <del>51</del> '41	
conjunction	1249 Feb 08 j 01:54	26° <del>55</del> '30	0°-42'-53	conjunction	1257 Mar 11 j 23:32	28° <del>44</del> '28	0°-41'-47
minimum elong	1249 Feb 08 j 01:54	26° <del>55</del> '30	0°42'54	minimum elong	1257 Mar 11 j 23:32	28° <del>44</del> '28	0°41'48
max. Earth dist.	1249 Feb 09 j 03:14	26° <del>59</del> '09	21.04129 AU	max. Earth dist.	1257 Mar 12 j 20:16	28° <del>47</del> '26	21.01806 AU
	1249 Apr 09 j 22:42	0° <del>5</del>			1257 Apr 03 j 08:47	0° <del>5</del>	
retrograde	1249 May 29 j 01:12	0° <del>56</del> '41		retrograde	1257 Jun 30 j 19:52	2° <del>47</del> '04	
	1249 Jul 18 j 19:01	30° <del>5</del>			1257 Sep 16 j 15:01	0° <del>47</del> '21	0°-45'-35
min. Earth dist.	1249 Aug 14 j 02:56	29° <del>00</del> '13	19.05003 AU	min. Earth dist.	1257 Sep 15 j 20:16	0° <del>49</del> '15	19.00767 AU
opposition	1249 Aug 15 j 02:48	28° <del>57</del> '50	0°-47'-44		1257 Oct 06 j 16:18	30° <del>5</del>	
direct	1249 Oct 29 j 21:33	27° <del>01</del> '36		direct	1257 Nov 30 j 18:15	28° <del>50</del> '45	
	1250 Jan 27 j 09:08	0° <del>5</del>			1258 Jan 22 j 13:29	0° <del>5</del>	
conjunction	1250 Feb 12 j 06:50	0° <del>54</del> '22	0°-43'-29	conjunction	1258 Mar 16 j 06:17	2° <del>43</del> '54	0°-40'-42
minimum elong	1250 Feb 12 j 06:50	0° <del>54</del> '22	0°43'30	minimum elong	1258 Mar 16 j 06:17	2° <del>43</del> '54	0°40'44
max. Earth dist.	1250 Feb 13 j 06:56	0° <del>57</del> '50	21.05656 AU	max. Earth dist.	1258 Mar 17 j 01:23	2° <del>46</del> '37	20.99578 AU
retrograde	1250 Jun 02 j 09:16	4° <del>55</del> '36		retrograde	1258 Jul 05 j 04:03	6° <del>46</del> '57	
opposition	1250 Aug 19 j 11:16	2° <del>56</del> '43	0°-48'-17	opposition	1258 Sep 20 j 22:07	4° <del>47</del> '06	0°-44'-17
min. Earth dist.	1250 Aug 18 j 12:37	2° <del>58</del> '59	19.06270 AU	min. Earth dist.	1258 Sep 20 j 05:04	4° <del>48</del> '50	18.98374 AU
direct	1250 Nov 03 j 02:54	1° <del>00</del> '33		direct	1258 Dec 04 j 22:12	2° <del>50</del> '24	
conjunction	1251 Feb 16 j 12:13	4° <del>53</del> '06	0°-43'-53	conjunction	1259 Mar 20 j 13:49	6° <del>44</del> '01	0°-39'-26
minimum elong	1251 Feb 16 j 12:12	4° <del>53</del> '06	0°43'54	minimum elong	1259 Mar 20 j 13:49	6° <del>44</del> '01	0°39'26
max. Earth dist.	1251 Feb 17 j 12:48	4° <del>56</del> '37	21.06647 AU	max. Earth dist.	1259 Mar 21 j 08:55	6° <del>46</del> '45	20.97026 AU
retrograde	1251 Jun 06 j 18:24	8° <del>54</del> '23		retrograde	1259 Jul 09 j 13:51	10° <del>47</del> '32	
opposition	1251 Aug 23 j 19:19	6° <del>55</del> '26	0°-48'-36	min. Earth dist.	1259 Sep 24 j 11:54	8° <del>49</del> '21	18.95645 AU
min. Earth dist.	1251 Aug 22 j 20:26	6° <del>57</del> '43	19.06974 AU	opposition	1259 Sep 25 j 05:00	8° <del>47</del> '37	0°-42'-46
direct	1251 Nov 07 j 09:32	4° <del>59</del> '18		direct	1259 Dec 09 j 04:28	6° <del>50</del> '47	
conjunction	1252 Feb 20 j 17:32	8° <del>51</del> '40	0°-44'-4	conjunction	1260 Mar 23 j 21:47	10° <del>44</del> '58	0°-37'-58
minimum elong	1252 Feb 20 j 17:32	8° <del>51</del> '40	0°44'04	minimum elong	1260 Mar 23 j 21:47	10° <del>44</del> '58	0°37'59
max. Earth dist.	1252 Feb 21 j 16:34	8° <del>54</del> '58	21.07069 AU	max. Earth dist.	1260 Mar 24 j 14:59	10° <del>47</del> '26	20.94128 AU
retrograde	1252 Jun 10 j 01:47	12° <del>53</del> '04		retrograde	1260 Jul 12 j 22:56	14° <del>49</del> '03	
min. Earth dist.	1252 Aug 26 j 05:56	10° <del>56</del> '09	19.07115 AU	opposition	1260 Sep 28 j 12:14	12° <del>49</del> '02	0°-41'-3
opposition	1252 Aug 27 j 03:16	10° <del>54</del> '01	0°-48'-41	min. Earth dist.	1260 Sep 27 j 21:13	12° <del>50</del> '34	18.92570 AU
direct	1252 Nov 10 j 14:27	8° <del>57</del> '52		direct	1260 Dec 12 j 08:41	10° <del>52</del> '05	
conjunction	1253 Feb 23 j 23:12	12° <del>50</del> '08	0°-44'-2	conjunction	1261 Mar 28 j 06:29	14° <del>46</del> '56	0°-36'-18
minimum elong	1253 Feb 23 j 23:12	12° <del>50</del> '08	0°44'03	minimum elong	1261 Mar 28 j 06:29	14° <del>46</del> '56	0°36'19
max. Earth dist.	1253 Feb 24 j 22:31	12° <del>53</del> '28	21.06936 AU	max. Earth dist.	1261 Mar 28 j 23:20	14° <del>49</del> '20	20.90878 AU
retrograde	1253 Jun 14 j 10:57	16° <del>51</del> '39		retrograde	1261 Jul 17 j 09:40	18° <del>51</del> '35	
opposition	1253 Aug 31 j 10:38	14° <del>52</del> '28	0°-48'-32	opposition	1261 Oct 02 j 19:22	16° <del>51</del> '30	0°-39'-7
min. Earth dist.	1253 Aug 30 j 13:11	14° <del>54</del> '38	19.06709 AU	min. Earth dist.	1261 Oct 02 j 04:36	16° <del>53</del> '01	18.89123 AU
direct	1253 Nov 14 j 21:06	12° <del>56</del> '16		direct	1261 Dec 16 j 15:27	14° <del>54</del> '25	
conjunction	1254 Feb 28 j 04:48	16° <del>48</del> '32	0°-43'-47	conjunction	1262 Apr 01 j 15:44	18° <del>50</del> '01	0°-34'-27
minimum elong	1254 Feb 28 j 04:48	16° <del>48</del> '32	0°43'48	minimum elong	1262 Apr 01 j 15:44	18° <del>50</del> '01	0°34'28
max. Earth dist.	1254 Mar 01 j 02:35	16° <del>51</del> '38	21.06285 AU	max. Earth dist.	1262 Apr 02 j 06:24	18° <del>52</del> '07	20.87241 AU
retrograde	1254 Jun 18 j 17:59	20° <del>50</del> '14		retrograde	1262 Jul 21 j 19:29	22° <del>55</del> '18	
opposition	1254 Sep 04 j 18:05	18° <del>50</del> '55	0°-48'-8	opposition	1262 Oct 07 j 03:00	20° <del>55</del> '09	0°-36'-58
min. Earth dist.	1254 Sep 03 j 22:11	18° <del>52</del> '55	19.05829 AU	min. Earth dist.	1262 Oct 06 j 14:40	20° <del>56</del> '24	18.85285 AU
direct	1254 Nov 19 j 01:16	16° <del>54</del> '37		direct	1262 Dec 20 j 20:05	18° <del>57</del> '53	
conjunction	1255 Mar 04 j 10:42	20° <del>46</del> '57	0°-43'-19	conjunction	1263 Apr 06 j 01:52	22° <del>54</del> '18	0°-32'-25
minimum elong	1255 Mar 04 j 10:42	20° <del>46</del> '57	0°43'21	minimum elong	1263 Apr 06 j 01:52	22° <del>54</del> '18	0°32'26
max. Earth dist.	1255 Mar 05 j 08:51	20° <del>50</del> '07	21.05188 AU	max. Earth dist.	1263 Apr 06 j 15:42	22° <del>56</del> '17	20.83197 AU
retrograde	1255 Jun 23 j 03:09	24° <del>48</del> '53		retrograde	1263 Jul 26 j 07:42	27° <del>00</del> '15	
min. Earth dist.	1255 Sep 08 j 05:01	22° <del>51</del> '28	19.04516 AU	opposition	1263 Oct 11 j 10:44	25° <del>00</del> '00	0°-34'-38
opposition	1255 Sep 09 j 01:11	22° <del>49</del> '26	0°-47'-31	min. Earth dist.	1263 Oct 10 j 23:01	25° <del>01</del> '12	18.81010 AU
direct	1255 Nov 23 j 08:01	20° <del>53</del> '02		direct	1263 Dec 25 j 03:46	23° <del>02</del> '31	
conjunction	1256 Mar 07 j 16:52	24° <del>45</del> '32	0°-42'-39	conjunction	1264 Apr 09 j 12:44	26° <del>59</del> '51	0°-30'-13
minimum elong	1256 Mar 07 j 16:52	24° <del>45</del> '32	0°42'40	minimum elong	1264 Apr 09 j 12:44	26° <del>59</del> '51	0°30'13
max. Earth dist.	1256 Mar 08 j 13:27	24° <del>48</del> '29	21.03678 AU	max. Earth dist.	1264 Apr 09 j 23:57	27° <del>01</del> '27	20.78694 AU
retrograde	1256 Jun 26 j 10:34	28° <del>47</del> '48			1264 Jun 06 j 19:42	0° <del>8</del>	

retrograde	1264 Jul 29 j 18:14	1°♄06'28			1271 Sep 30 j 23:26	30°♄	
	1264 Sep 22 j 03:59	30°♄		opposition	1271 Nov 13 j 12:43	28°♄24'15	0°-10'-3
opposition	1264 Oct 14 j 18:49	29°♄06'05	0°-32'-6	min. Earth dist.	1271 Nov 13 j 13:37	28°♄24'10	18.34451 AU
min. Earth dist.	1264 Oct 14 j 09:51	29°♄07'00	18.76280 AU	direct	1272 Jan 27 j 02:31	26°♄23'55	
direct	1264 Dec 28 j 09:37	27°♄08'20			1272 May 05 j 13:41	0°♄	
	1265 Mar 25 j 12:54	0°♄		conjunction	1272 May 14 j 06:09	0°♄30'35	0°-7'-31
conjunction	1265 Apr 14 j 00:26	1°♄06'37	0°-27'-50	minimum elong	1272 May 14 j 06:08	0°♄30'34	0°07'32
minimum elong	1265 Apr 14 j 00:26	1°♄06'37	0°27'51	behind sun begin	1272 May 14 j 00:01	0°♄29'42	
max. Earth dist.	1265 Apr 14 j 10:22	1°♄08'03	20.73750 AU	behind sun end	1272 May 14 j 12:15	0°♄31'27	
retrograde	1265 Aug 03 j 07:16	5°♄13'56		max. Earth dist.	1272 May 14 j 03:20	0°♄30'11	20.31235 AU
opposition	1265 Oct 19 j 03:11	3°♄13'22	0°-29'-23	retrograde	1272 Sep 02 j 06:53	4°♄43'18	
min. Earth dist.	1265 Oct 18 j 18:53	3°♄14'14	18.71110 AU	opposition	1272 Nov 16 j 23:57	2°♄41'27	0°-6'-28
direct	1266 Jan 01 j 18:01	1°♄15'20		min. Earth dist.	1272 Nov 17 j 03:07	2°♄41'07	18.27990 AU
				direct	1273 Jan 30 j 12:36	0°♄40'46	
conjunction	1266 Apr 18 j 12:32	5°♄14'36	0°-25'-18	conjunction	1273 May 18 j 23:57	4°♄48'52	0°-4'-16
minimum elong	1266 Apr 18 j 12:32	5°♄14'36	0°25'18	minimum elong	1273 May 18 j 23:57	4°♄48'52	0°04'17
max. Earth dist.	1266 Apr 18 j 19:57	5°♄15'40	20.68381 AU	behind sun begin	1273 May 18 j 17:18	4°♄47'55	
retrograde	1266 Aug 07 j 18:52	9°♄22'38		behind sun end	1273 May 19 j 06:36	4°♄49'50	
opposition	1266 Oct 23 j 12:00	7°♄21'52	0°-26'-30	max. Earth dist.	1273 May 18 j 19:25	4°♄48'14	20.24794 AU
min. Earth dist.	1266 Oct 23 j 06:23	7°♄22'27	18.65553 AU	retrograde	1273 Sep 07 j 00:29	9°♄02'28	
direct	1267 Jan 06 j 01:20	5°♄23'28		opposition	1273 Nov 21 j 11:45	7°♄00'31	0°-2'-49
				min. Earth dist.	1273 Nov 21 j 15:27	7°♄00'08	18.21560 AU
conjunction	1267 Apr 23 j 01:38	9°♄23'48	0°-22'-37	direct	1274 Feb 04 j 01:55	4°♄59'29	
minimum elong	1267 Apr 23 j 01:38	9°♄23'48	0°22'39				
max. Earth dist.	1267 Apr 23 j 07:45	9°♄24'41	20.62669 AU	conjunction	1274 May 23 j 18:35	9°♄09'07	0°00'-55
retrograde	1267 Aug 12 j 08:25	13°♄32'33		minimum elong	1274 May 23 j 18:36	9°♄09'07	0°00'56
opposition	1267 Oct 27 j 20:50	11°♄31'35	0°-23'-28	behind sun begin	1274 May 23 j 11:50	9°♄08'08	
min. Earth dist.	1267 Oct 27 j 15:52	11°♄32'06	18.59684 AU	behind sun end	1274 May 24 j 01:22	9°♄10'05	
direct	1268 Jan 10 j 10:36	9°♄32'48		max. Earth dist.	1274 May 23 j 12:37	9°♄08'15	20.18370 AU
				asc. node	1274 Aug 31 j 10:17	13°♄20'18	
conjunction	1268 Apr 26 j 15:23	13°♄34'16	0°-19'-48	retrograde	1274 Sep 11 j 16:12	13°♄23'36	
minimum elong	1268 Apr 26 j 15:23	13°♄34'16	0°19'49	opposition	1274 Nov 26 j 00:20	11°♄21'36	0°00'52
max. Earth dist.	1268 Apr 26 j 19:09	13°♄34'49	20.56665 AU	min. Earth dist.	1274 Nov 26 j 06:20	11°♄20'57	18.15150 AU
	1268 May 21 j 16:59	15°♄		direct	1275 Feb 08 j 13:20	9°♄20'14	
retrograde	1268 Aug 15 j 20:53	17°♄43'46					
opposition	1268 Oct 31 j 06:15	15°♄42'35	0°-20'-17	conjunction	1275 May 28 j 14:21	13°♄31'24	0°02'31
min. Earth dist.	1268 Oct 31 j 03:51	15°♄42'50	18.53569 AU	minimum elong	1275 May 28 j 14:21	13°♄31'24	0°02'31
	1268 Nov 17 j 14:04	15°♄		behind sun begin	1275 May 28 j 07:35	13°♄30'25	
direct	1269 Jan 13 j 18:55	13°♄43'24		behind sun end	1275 May 28 j 21:07	13°♄32'23	
	1269 Mar 10 j 04:59	15°♄		max. Earth dist.	1275 May 28 j 06:11	13°♄30'12	20.11980 AU
conjunction	1269 May 01 j 05:50	17°♄46'04	0°-16'-52	retrograde	1275 Sep 16 j 11:06	17°♄46'46	
minimum elong	1269 May 01 j 05:50	17°♄46'04	0°16'53	opposition	1275 Nov 30 j 13:21	15°♄44'43	0°04'35
max. Earth dist.	1269 May 01 j 08:17	17°♄46'25	20.50462 AU	min. Earth dist.	1275 Nov 30 j 20:19	15°♄43'58	18.08764 AU
retrograde	1269 Aug 20 j 11:24	21°♄56'20		direct	1276 Feb 13 j 04:44	13°♄43'01	
opposition	1269 Nov 04 j 15:53	19°♄54'57	0°-16'-58				
min. Earth dist.	1269 Nov 04 j 13:57	19°♄55'09	18.47284 AU	conjunction	1276 Jun 01 j 11:08	17°♄55'46	0°05'52
direct	1270 Jan 18 j 05:30	17°♄55'23		minimum elong	1276 Jun 01 j 11:08	17°♄55'46	0°05'52
				behind sun begin	1276 Jun 01 j 04:40	17°♄54'50	
conjunction	1270 May 05 j 21:03	21°♄59'18	0°-13'-50	behind sun end	1276 Jun 01 j 17:35	17°♄56'43	
minimum elong	1270 May 05 j 21:03	21°♄59'18	0°13'51	max. Earth dist.	1276 Jun 01 j 01:29	17°♄54'21	20.05581 AU
behind sun begin	1270 May 05 j 17:42	21°♄58'50		retrograde	1276 Sep 20 j 03:49	22°♄11'59	
behind sun end	1270 May 06 j 00:24	21°♄59'47		opposition	1276 Dec 04 j 03:20	20°♄09'54	0°08'19
max. Earth dist.	1270 May 05 j 21:31	21°♄59'22	20.44113 AU	min. Earth dist.	1276 Dec 04 j 12:37	20°♄08'54	18.02366 AU
retrograde	1270 Aug 25 j 00:32	26°♄10'22		direct	1277 Feb 16 j 18:15	18°♄07'52	
opposition	1270 Nov 09 j 02:07	24°♄08'48	0°-13'-34				
min. Earth dist.	1270 Nov 09 j 02:32	24°♄08'45	18.40893 AU	conjunction	1277 Jun 06 j 08:31	22°♄22'10	0°09'12
direct	1271 Jan 22 j 14:36	22°♄08'50		minimum elong	1277 Jun 06 j 08:31	22°♄22'10	0°09'12
				behind sun begin	1277 Jun 06 j 02:50	22°♄21'20	
conjunction	1271 May 10 j 13:09	26°♄14'06	0°-10'-43	behind sun end	1277 Jun 06 j 14:12	22°♄23'00	
minimum elong	1271 May 10 j 13:09	26°♄14'06	0°10'43	max. Earth dist.	1277 Jun 05 j 20:16	22°♄20'21	19.99182 AU
behind sun begin	1271 May 10 j 08:02	26°♄13'22		retrograde	1277 Sep 24 j 23:31	26°♄39'14	
behind sun end	1271 May 10 j 18:17	26°♄14'50		opposition	1277 Dec 08 j 17:58	24°♄37'04	0°12'02
max. Earth dist.	1271 May 10 j 12:08	26°♄13'57	20.37697 AU	min. Earth dist.	1277 Dec 09 j 04:21	24°♄35'57	17.95969 AU
	1271 Jul 28 j 14:17	0°♄		direct	1278 Feb 21 j 11:40	22°♄34'40	
retrograde	1271 Aug 29 j 16:38	0°♄25'59					

conjunction	1278 Jun 11 j 07:02	26°II50'31	0°12'30	min. Earth dist.	1286 Jan 14 j 11:00	1°Ω11'37	17.50587 AU
minimum elong	1278 Jun 11 j 07:01	26°II50'31	0°12'31		1286 Feb 12 j 16:27	30°RΩ	
behind sun begin	1278 Jun 11 j 02:46	26°II49'53		direct	1286 Mar 30 j 00:26	29°Ω08'21	
behind sun end	1278 Jun 11 j 11:17	26°II51'08			1286 May 13 j 14:47	0°Ω	
max. Earth dist.	1278 Jun 10 j 17:34	26°II48'30	19.92776 AU				
	1278 Aug 08 j 21:39	0°Ω		conjunction	1286 Jul 19 j 17:09	3°Ω35'04	0°35'07
retrograde	1278 Sep 29 j 17:28	1°Ω08'21		minimum elong	1286 Jul 19 j 17:09	3°Ω35'04	0°35'07
	1278 Nov 21 j 19:32	30°RII		max. Earth dist.	1286 Jul 18 j 17:48	3°Ω31'28	19.48519 AU
opposition	1278 Dec 13 j 09:16	29°II06'06	0°15'41	retrograde	1286 Nov 05 j 21:28	7°Ω57'31	
min. Earth dist.	1278 Dec 13 j 21:44	29°II04'46	17.89577 AU	opposition	1287 Jan 18 j 11:38	5°Ω54'42	0°40'16
direct	1279 Feb 26 j 03:51	27°II03'19		min. Earth dist.	1287 Jan 19 j 07:21	5°Ω52'32	17.46637 AU
	1279 May 24 j 14:51	0°Ω		direct	1287 Apr 03 j 23:16	3°Ω49'02	
conjunction	1279 Jun 16 j 06:12	1°Ω20'41	0°15'46	conjunction	1287 Jul 24 j 20:33	8°Ω16'50	0°37'09
minimum elong	1279 Jun 16 j 06:12	1°Ω20'41	0°15'45	minimum elong	1287 Jul 24 j 20:33	8°Ω16'50	0°37'08
max. Earth dist.	1279 Jun 15 j 13:51	1°Ω18'14	19.86413 AU	max. Earth dist.	1287 Jul 23 j 19:55	8°Ω13'01	19.44830 AU
retrograde	1279 Oct 04 j 13:37	5°Ω39'17		retrograde	1287 Nov 10 j 20:08	12°Ω39'39	
opposition	1279 Dec 18 j 01:14	3°Ω36'56	0°19'17	opposition	1288 Jan 23 j 09:02	10°Ω36'53	0°42'24
min. Earth dist.	1279 Dec 18 j 14:56	3°Ω35'27	17.83255 AU	min. Earth dist.	1288 Jan 24 j 05:52	10°Ω34'36	17.43219 AU
direct	1280 Mar 01 j 22:38	1°Ω33'42		direct	1288 Apr 07 j 22:29	8°Ω31'03	
				max. Earth dist.	1288 Jul 27 j 23:52	12°Ω56'04	19.41667 AU
conjunction	1280 Jun 20 j 06:11	5°Ω52'35	0°18'57	conjunction	1288 Jul 29 j 00:11	12°Ω59'51	0°38'56
minimum elong	1280 Jun 20 j 06:11	5°Ω52'35	0°18'57	minimum elong	1288 Jul 29 j 00:11	12°Ω59'51	0°38'56
max. Earth dist.	1280 Jun 19 j 13:06	5°Ω50'00	19.80132 AU		1288 Aug 31 j 07:42	15°Ω	
retrograde	1280 Oct 08 j 09:19	10°Ω11'51		retrograde	1288 Nov 14 j 20:20	17°Ω22'58	
opposition	1280 Dec 21 j 17:54	8°Ω09'24	0°22'47	opposition	1289 Jan 27 j 06:58	15°Ω20'18	0°44'16
min. Earth dist.	1280 Dec 22 j 09:11	8°Ω07'45	17.77050 AU	min. Earth dist.	1289 Jan 28 j 03:19	15°Ω18'04	17.40303 AU
direct	1281 Mar 06 j 17:01	6°Ω05'47			1289 Feb 04 j 01:06	15°RΩ	
max. Earth dist.	1281 Jun 24 j 10:54	10°Ω23'05	19.74027 AU	direct	1289 Apr 12 j 23:32	13°Ω14'20	
conjunction	1281 Jun 25 j 06:38	10°Ω26'05	0°22'01		1289 Jun 17 j 03:37	15°Ω	
minimum elong	1281 Jun 25 j 06:38	10°Ω26'05	0°22'02	max. Earth dist.	1289 Aug 02 j 03:09	17°Ω40'07	19.38990 AU
retrograde	1281 Oct 13 j 06:13	14°Ω46'01		conjunction	1289 Aug 03 j 04:07	17°Ω44'00	0°40'28
opposition	1281 Dec 26 j 11:10	12°Ω43'27	0°26'09	minimum elong	1289 Aug 03 j 04:07	17°Ω44'00	0°40'27
min. Earth dist.	1281 Dec 27 j 03:37	12°Ω41'40	17.71067 AU	retrograde	1289 Nov 19 j 19:18	22°Ω07'22	
direct	1282 Mar 11 j 12:42	10°Ω39'24		opposition	1290 Feb 01 j 05:35	20°Ω04'47	0°45'50
max. Earth dist.	1282 Jun 29 j 11:54	14°Ω58'05	19.68163 AU	min. Earth dist.	1290 Feb 02 j 03:13	20°Ω02'25	17.37876 AU
conjunction	1282 Jun 30 j 07:48	15°Ω01'06	0°24'59	direct	1290 Apr 17 j 23:55	17°Ω58'44	
minimum elong	1282 Jun 30 j 07:48	15°Ω01'06	0°24'59	max. Earth dist.	1290 Aug 07 j 07:09	22°Ω25'13	19.36790 AU
retrograde	1282 Oct 18 j 03:42	19°Ω21'38		conjunction	1290 Aug 08 j 08:16	22°Ω29'09	0°41'43
opposition	1282 Dec 31 j 05:09	17°Ω18'59	0°29'22	minimum elong	1290 Aug 08 j 08:16	22°Ω29'09	0°41'44
min. Earth dist.	1282 Dec 31 j 22:37	17°Ω17'04	17.65349 AU	retrograde	1290 Nov 24 j 20:07	26°Ω52'40	
direct	1283 Mar 16 j 08:33	15°Ω14'31		opposition	1291 Feb 06 j 04:45	24°Ω50'11	0°47'06
max. Earth dist.	1283 Jul 04 j 11:11	19°Ω34'11	19.62609 AU	min. Earth dist.	1291 Feb 07 j 01:42	24°Ω47'54	17.35894 AU
conjunction	1283 Jul 05 j 09:27	19°Ω37'35	0°27'47	direct	1291 Apr 23 j 02:48	22°Ω44'02	
minimum elong	1283 Jul 05 j 09:27	19°Ω37'35	0°27'48	max. Earth dist.	1291 Aug 12 j 11:22	27°Ω11'08	19.35018 AU
retrograde	1283 Oct 23 j 01:21	23°Ω58'40		conjunction	1291 Aug 13 j 12:31	27°Ω15'04	0°42'42
opposition	1284 Jan 04 j 23:43	21°Ω55'55	0°32'25	minimum elong	1291 Aug 13 j 12:31	27°Ω15'04	0°42'43
min. Earth dist.	1284 Jan 05 j 18:19	21°Ω53'53	17.59991 AU		1291 Sep 29 j 15:28	0°RΩ	
direct	1284 Mar 20 j 05:18	19°Ω51'04		retrograde	1291 Nov 29 j 19:15	1°RΩ38'39	
conjunction	1284 Jul 09 j 11:42	24°Ω15'25	0°30'25		1292 Feb 02 j 01:55	30°RΩ	
minimum elong	1284 Jul 09 j 11:42	24°Ω15'25	0°30'25	opposition	1292 Feb 11 j 04:35	29°Ω36'16	0°48'02
max. Earth dist.	1284 Jul 08 j 13:42	24°Ω12'03	19.57443 AU	min. Earth dist.	1292 Feb 12 j 02:41	29°Ω33'51	17.34350 AU
retrograde	1284 Oct 26 j 23:58	28°Ω37'00		direct	1292 Apr 27 j 04:35	27°Ω30'03	
opposition	1285 Jan 08 j 19:04	26°Ω34'12	0°35'15		1292 Jul 15 j 05:58	0°RΩ	
min. Earth dist.	1285 Jan 09 j 13:57	26°Ω32'08	17.55044 AU	conjunction	1292 Aug 17 j 16:37	2°RΩ01'33	0°43'24
direct	1285 Mar 25 j 02:22	24°Ω29'02		minimum elong	1292 Aug 17 j 16:37	2°RΩ01'33	0°43'23
conjunction	1285 Jul 14 j 14:04	28°Ω54'35	0°32'52	max. Earth dist.	1292 Aug 16 j 15:04	1°RΩ57'32	19.33701 AU
minimum elong	1285 Jul 14 j 14:04	28°Ω54'35	0°32'52	retrograde	1292 Dec 03 j 20:18	6°RΩ25'07	
max. Earth dist.	1285 Jul 13 j 14:19	28°Ω50'56	19.52726 AU	opposition	1293 Feb 15 j 04:45	4°RΩ22'48	0°48'39
	1285 Aug 01 j 10:20	0°Ω		min. Earth dist.	1293 Feb 16 j 01:47	4°RΩ20'30	17.33255 AU
retrograde	1285 Oct 31 j 22:13	3°Ω16'39		direct	1293 May 02 j 08:46	2°RΩ16'32	
opposition	1286 Jan 13 j 15:07	1°Ω13'48	0°37'53				

conjunction	1293 Aug 22 j 20:31	6° <del>11</del> 48'20	0°43'47	conjunction	1301 Sep 30 j 11:00	14° <del>11</del> 49'39	0°36'16
minimum elong	1293 Aug 22 j 20:31	6° <del>11</del> 48'20	0°43'48	minimum elong	1301 Sep 30 j 11:00	14° <del>11</del> 49'39	0°36'17
max. Earth dist.	1293 Aug 21 j 19:51	6° <del>11</del> 44'28	19.32828 AU	max. Earth dist.	1301 Sep 29 j 20:06	14° <del>11</del> 47'19	19.45231 AU
retrograde	1293 Dec 08 j 19:23	11° <del>11</del> 11'48		retrograde	1302 Jan 15 j 13:40	19° <del>11</del> 09'43	
opposition	1294 Feb 20 j 05:22	9° <del>11</del> 09'34	0°48'55	opposition	1302 Mar 30 j 14:38	17° <del>11</del> 08'18	0°39'17
min. Earth dist.	1294 Feb 21 j 03:12	9° <del>11</del> 07'11	17.32615 AU	min. Earth dist.	1302 Mar 31 j 03:26	17° <del>11</del> 06'56	17.47227 AU
direct	1294 May 07 j 11:06	7° <del>11</del> 03'15		direct	1302 Jun 15 j 15:01	15° <del>11</del> 02'59	
max. Earth dist.	1294 Aug 26 j 23:02	11° <del>11</del> 31'16	19.32433 AU				
conjunction	1294 Aug 28 j 00:09	11° <del>11</del> 35'13	0°43'52	conjunction	1302 Oct 05 j 09:54	19° <del>11</del> 31'12	0°34'09
minimum elong	1294 Aug 28 j 00:09	11° <del>11</del> 35'13	0°43'52	minimum elong	1302 Oct 05 j 09:54	19° <del>11</del> 31'12	0°34'08
retrograde	1294 Dec 13 j 20:28	15° <del>11</del> 58'30		max. Earth dist.	1302 Oct 04 j 20:00	19° <del>11</del> 29'01	19.49318 AU
opposition	1295 Feb 25 j 06:01	13° <del>11</del> 56'19	0°48'51	retrograde	1303 Jan 20 j 10:20	23° <del>11</del> 50'36	
min. Earth dist.	1295 Feb 26 j 02:39	13° <del>11</del> 54'04	17.32461 AU	opposition	1303 Apr 04 j 15:40	21° <del>11</del> 49'23	0°36'46
direct	1295 May 12 j 15:31	11° <del>11</del> 49'58		min. Earth dist.	1303 Apr 05 j 03:27	21° <del>11</del> 48'07	17.51538 AU
max. Earth dist.	1295 Sep 01 j 04:08	16° <del>11</del> 18'16	19.32530 AU	direct	1303 Jun 20 j 16:59	19° <del>11</del> 44'22	
conjunction	1295 Sep 02 j 03:34	16° <del>11</del> 21'57	0°43'39	conjunction	1303 Oct 10 j 08:08	24° <del>11</del> 11'35	0°31'48
minimum elong	1295 Sep 02 j 03:34	16° <del>11</del> 21'57	0°43'39	minimum elong	1303 Oct 10 j 08:08	24° <del>11</del> 11'35	0°31'48
retrograde	1295 Dec 18 j 19:46	20° <del>11</del> 44'58		max. Earth dist.	1303 Oct 09 j 20:27	24° <del>11</del> 09'46	19.53838 AU
opposition	1296 Mar 01 j 07:11	18° <del>11</del> 42'51	0°48'26	retrograde	1304 Jan 25 j 08:17	28° <del>11</del> 30'16	
min. Earth dist.	1296 Mar 02 j 04:01	18° <del>11</del> 40'35	17.32817 AU	opposition	1304 Apr 08 j 16:33	26° <del>11</del> 29'15	0°34'02
direct	1296 May 16 j 18:04	16° <del>11</del> 36'30		min. Earth dist.	1304 Apr 09 j 02:16	26° <del>11</del> 28'13	17.56230 AU
max. Earth dist.	1296 Sep 05 j 06:38	21° <del>11</del> 04'38	19.33165 AU	direct	1304 Jun 24 j 20:15	24° <del>11</del> 24'35	
conjunction	1296 Sep 06 j 06:09	21° <del>11</del> 08'20	0°43'07	conjunction	1304 Oct 14 j 05:25	28° <del>11</del> 50'41	0°29'15
minimum elong	1296 Sep 06 j 06:08	21° <del>11</del> 08'20	0°43'08	minimum elong	1304 Oct 14 j 05:25	28° <del>11</del> 50'41	0°29'14
retrograde	1296 Dec 22 j 20:22	25° <del>11</del> 31'00		max. Earth dist.	1304 Oct 13 j 19:05	28° <del>11</del> 49'04	19.58700 AU
opposition	1297 Mar 06 j 08:20	23° <del>11</del> 28'56	0°47'41		1304 Nov 01 j 21:08	0° <del>11</del> 00'00	
min. Earth dist.	1297 Mar 07 j 03:40	23° <del>11</del> 26'50	17.33733 AU	retrograde	1305 Jan 29 j 04:12	3° <del>11</del> 08'38	
direct	1297 May 21 j 21:54	21° <del>11</del> 22'37		opposition	1305 Apr 13 j 17:13	1° <del>11</del> 07'47	0°31'05
max. Earth dist.	1297 Sep 10 j 11:19	25° <del>11</del> 50'50	19.34367 AU	min. Earth dist.	1305 Apr 14 j 02:12	1° <del>11</del> 06'50	17.61249 AU
conjunction	1297 Sep 11 j 08:28	25° <del>11</del> 54'10	0°42'18		1305 May 12 j 00:03	30° <del>11</del> 00'00	
minimum elong	1297 Sep 11 j 08:28	25° <del>11</del> 54'10	0°42'18	direct	1305 Jun 29 j 20:54	29° <del>11</del> 03'26	
	1297 Dec 03 j 15:47	0° <del>11</del> 00'00			1305 Aug 16 j 01:48	0° <del>11</del> 00'00	
retrograde	1297 Dec 27 j 19:24	0° <del>11</del> 16'24		conjunction	1305 Oct 19 j 02:03	3° <del>11</del> 28'21	0°26'31
	1298 Jan 21 j 06:43	30° <del>11</del> 00'00		minimum elong	1305 Oct 19 j 02:03	3° <del>11</del> 28'21	0°26'31
opposition	1298 Mar 11 j 09:32	28° <del>11</del> 14'25	0°46'36	max. Earth dist.	1305 Oct 18 j 17:25	3° <del>11</del> 27'00	19.63858 AU
min. Earth dist.	1298 Mar 12 j 04:23	28° <del>11</del> 12'22	17.35226 AU	retrograde	1306 Feb 03 j 01:22	7° <del>11</del> 45'29	
direct	1298 May 27 j 00:45	26° <del>11</del> 08'11		opposition	1306 Apr 18 j 17:17	5° <del>11</del> 44'48	0°27'56
	1298 Sep 05 j 23:55	0° <del>11</del> 00'00		min. Earth dist.	1306 Apr 18 j 23:59	5° <del>11</del> 44'06	17.66514 AU
conjunction	1298 Sep 16 j 10:03	0° <del>11</del> 39'17	0°41'12	direct	1306 Jul 04 j 22:49	3° <del>11</del> 40'48	
minimum elong	1298 Sep 16 j 10:03	0° <del>11</del> 39'17	0°41'12	conjunction	1306 Oct 23 j 21:51	8° <del>11</del> 04'25	0°23'38
max. Earth dist.	1298 Sep 15 j 13:09	0° <del>11</del> 36'00	19.36171 AU	minimum elong	1306 Oct 23 j 21:51	8° <del>11</del> 04'25	0°23'38
retrograde	1299 Jan 01 j 18:52	5° <del>11</del> 01'04		max. Earth dist.	1306 Oct 23 j 14:51	8° <del>11</del> 03'20	19.69231 AU
opposition	1299 Mar 16 j 10:52	2° <del>11</del> 59'09	0°45'12	retrograde	1307 Feb 07 j 20:23	12° <del>11</del> 20'44	
min. Earth dist.	1299 Mar 17 j 04:05	2° <del>11</del> 57'18	17.37340 AU	opposition	1307 Apr 23 j 17:16	10° <del>11</del> 20'12	0°24'38
direct	1299 Jun 01 j 04:10	0° <del>11</del> 53'04		min. Earth dist.	1307 Apr 23 j 23:24	10° <del>11</del> 19'33	17.71988 AU
conjunction	1299 Sep 21 j 11:05	5° <del>11</del> 23'38	0°39'49	direct	1307 Jul 09 j 22:28	8° <del>11</del> 16'31	
minimum elong	1299 Sep 21 j 11:05	5° <del>11</del> 23'38	0°39'48	conjunction	1307 Oct 28 j 16:36	12° <del>11</del> 38'47	0°20'36
max. Earth dist.	1299 Sep 20 j 16:52	5° <del>11</del> 20'46	19.38594 AU	minimum elong	1307 Oct 28 j 16:36	12° <del>11</del> 38'47	0°20'36
retrograde	1300 Jan 06 j 17:30	9° <del>11</del> 44'52		max. Earth dist.	1307 Oct 28 j 11:02	12° <del>11</del> 37'55	19.74799 AU
opposition	1300 Mar 20 j 12:16	7° <del>11</del> 43'06	0°43'31		1307 Dec 07 j 16:41	15° <del>11</del> 00'00	
min. Earth dist.	1300 Mar 21 j 04:11	7° <del>11</del> 41'23	17.40058 AU	retrograde	1308 Feb 12 j 16:28	16° <del>11</del> 54'15	
direct	1300 Jun 05 j 08:05	5° <del>11</del> 37'13			1308 Apr 25 j 05:32	15° <del>11</del> 00'00	
conjunction	1300 Sep 25 j 11:21	10° <del>11</del> 07'06	0°38'10	opposition	1308 Apr 27 j 16:37	14° <del>11</del> 53'50	0°21'11
minimum elong	1300 Sep 25 j 11:21	10° <del>11</del> 07'06	0°38'10	min. Earth dist.	1308 Apr 27 j 20:08	14° <del>11</del> 53'28	17.77626 AU
max. Earth dist.	1300 Sep 24 j 17:52	10° <del>11</del> 04'21	19.41626 AU	direct	1308 Jul 13 j 23:16	12° <del>11</del> 50'28	
retrograde	1301 Jan 10 j 15:20	14° <del>11</del> 27'47			1308 Sep 25 j 10:11	15° <del>11</del> 00'00	
opposition	1301 Mar 25 j 13:29	12° <del>11</del> 26'10	0°41'32	conjunction	1308 Nov 01 j 10:32	17° <del>11</del> 11'19	0°17'28
min. Earth dist.	1301 Mar 26 j 03:58	12° <del>11</del> 24'37	17.43384 AU	minimum elong	1308 Nov 01 j 10:32	17° <del>11</del> 11'19	0°17'29
direct	1301 Jun 10 j 10:59	10° <del>11</del> 20'33		max. Earth dist.	1308 Nov 01 j 07:04	17° <del>11</del> 10'47	19.80515 AU
				retrograde	1309 Feb 16 j 09:58	21° <del>11</del> 25'54	
				opposition	1309 May 02 j 15:24	19° <del>11</del> 25'35	0°17'38

min. Earth dist.	1309 May 02 j 18:22	19° <del>ℓ</del> 25'16	17.83422 AU	conjunction	1315 Dec 02 j 13:26	18° <del>♊</del> 05'04	0°-5'-47
direct	1309 Jul 18 j 21:35	17° <del>ℓ</del> 22'32		minimum elong	1315 Dec 02 j 13:26	18° <del>♊</del> 05'04	0°05'47
				behind sun begin	1315 Dec 02 j 07:10	18° <del>♊</del> 04'08	
conjunction	1309 Nov 06 j 03:25	21° <del>ℓ</del> 41'55	0°14'15	behind sun end	1315 Dec 02 j 19:42	18° <del>♊</del> 05'59	
minimum elong	1309 Nov 06 j 03:25	21° <del>ℓ</del> 41'55	0°14'15	max. Earth dist.	1315 Dec 02 j 22:46	18° <del>♊</del> 06'28	20.24970 AU
behind sun begin	1309 Nov 06 j 00:10	21° <del>ℓ</del> 41'25		retrograde	1316 Mar 19 j 03:10	22° <del>♊</del> 13'47	
behind sun end	1309 Nov 06 j 06:40	21° <del>ℓ</del> 42'24		opposition	1316 Jun 03 j 13:15	20° <del>♊</del> 14'18	0°-8'-8
max. Earth dist.	1309 Nov 06 j 01:10	21° <del>ℓ</del> 41'34	19.86394 AU	min. Earth dist.	1316 Jun 03 j 02:15	20° <del>♊</del> 15'25	18.28315 AU
retrograde	1310 Feb 21 j 04:55	25° <del>ℓ</del> 55'36		direct	1316 Aug 19 j 18:31	18° <del>♊</del> 13'52	
opposition	1310 May 07 j 13:31	23° <del>ℓ</del> 55'22	0°14'00				
min. Earth dist.	1310 May 07 j 13:43	23° <del>ℓ</del> 55'21	17.89366 AU	conjunction	1316 Dec 06 j 00:31	22° <del>♊</del> 22'52	0°-9'00
direct	1310 Jul 23 j 20:49	21° <del>ℓ</del> 52'37		minimum elong	1316 Dec 06 j 00:30	22° <del>♊</del> 22'52	0°09'02
				behind sun begin	1316 Dec 05 j 18:53	22° <del>♊</del> 22'03	
conjunction	1310 Nov 10 j 19:19	26° <del>ℓ</del> 10'31	0°10'58	behind sun end	1316 Dec 06 j 06:07	22° <del>♊</del> 23'42	
minimum elong	1310 Nov 10 j 19:19	26° <del>ℓ</del> 10'31	0°10'58	max. Earth dist.	1316 Dec 06 j 12:34	22° <del>♊</del> 24'41	20.31676 AU
behind sun begin	1310 Nov 10 j 14:19	26° <del>ℓ</del> 09'46		retrograde	1317 Mar 23 j 15:09	26° <del>♊</del> 30'50	
behind sun end	1310 Nov 11 j 00:19	26° <del>ℓ</del> 11'16		opposition	1317 Jun 08 j 06:50	24° <del>♊</del> 31'31	0°-11'-42
max. Earth dist.	1310 Nov 10 j 19:41	26° <del>ℓ</del> 10'34	19.92415 AU	min. Earth dist.	1317 Jun 07 j 19:02	24° <del>♊</del> 32'43	18.34983 AU
	1311 Jan 27 j 07:19	0° <del>♊</del>		direct	1317 Aug 24 j 10:53	22° <del>♊</del> 31'30	
retrograde	1311 Feb 25 j 20:43	0° <del>♊</del> 23'19					
	1311 Mar 28 j 04:49	30° <del>♋</del>		conjunction	1317 Dec 10 j 10:46	26° <del>♊</del> 39'06	0°-12'-11
opposition	1311 May 12 j 11:12	28° <del>ℓ</del> 23'10	0°10'19	minimum elong	1317 Dec 10 j 10:46	26° <del>♊</del> 39'06	0°12'11
min. Earth dist.	1311 May 12 j 10:32	28° <del>ℓ</del> 23'14	17.95477 AU	behind sun begin	1317 Dec 10 j 06:17	26° <del>♊</del> 38'26	
direct	1311 Jul 28 j 18:04	26° <del>ℓ</del> 20'45		behind sun end	1317 Dec 10 j 15:15	26° <del>♊</del> 39'45	
	1311 Nov 05 j 07:46	0° <del>♊</del>		max. Earth dist.	1317 Dec 10 j 23:13	26° <del>♊</del> 40'57	20.38290 AU
					1318 Feb 13 j 08:59	0° <del>♋</del>	
conjunction	1311 Nov 15 j 10:13	0° <del>♊</del> 37'07	0°07'39	retrograde	1318 Mar 28 j 05:31	0° <del>♋</del> 46'21	
minimum elong	1311 Nov 15 j 10:13	0° <del>♊</del> 37'07	0°07'39		1318 May 11 j 17:48	30° <del>♋</del>	
behind sun begin	1311 Nov 15 j 04:15	0° <del>♊</del> 36'13		opposition	1318 Jun 12 j 23:52	28° <del>♊</del> 47'10	0°-15'-11
behind sun end	1311 Nov 15 j 16:10	0° <del>♊</del> 38'00		min. Earth dist.	1318 Jun 12 j 10:11	28° <del>♊</del> 48'33	18.41530 AU
max. Earth dist.	1311 Nov 15 j 11:51	0° <del>♊</del> 37'20	19.98624 AU	direct	1318 Aug 29 j 02:20	26° <del>♊</del> 47'33	
retrograde	1312 Mar 01 j 14:42	4° <del>♊</del> 49'03			1318 Nov 29 j 18:42	0° <del>♋</del>	
opposition	1312 May 16 j 08:05	2° <del>♊</del> 48'59	0°06'36				
min. Earth dist.	1312 May 16 j 04:22	2° <del>♊</del> 49'22	18.01780 AU	conjunction	1318 Dec 14 j 20:26	0° <del>♋</del> 53'46	0°-15'-16
direct	1312 Aug 01 j 15:22	0° <del>♊</del> 46'55		minimum elong	1318 Dec 14 j 20:27	0° <del>♋</del> 53'46	0°15'17
				behind sun begin	1318 Dec 14 j 18:07	0° <del>♋</del> 53'26	
conjunction	1312 Nov 19 j 00:17	5° <del>♊</del> 01'46	0°04'19	behind sun end	1318 Dec 14 j 22:46	0° <del>♋</del> 54'06	
minimum elong	1312 Nov 19 j 00:17	5° <del>♊</del> 01'46	0°04'19	max. Earth dist.	1318 Dec 15 j 11:22	0° <del>♋</del> 56'00	20.44735 AU
behind sun begin	1312 Nov 18 j 17:49	5° <del>♊</del> 00'48		retrograde	1319 Apr 01 j 16:59	5° <del>♋</del> 00'20	
behind sun end	1312 Nov 19 j 06:44	5° <del>♊</del> 02'44		opposition	1319 Jun 17 j 16:23	3° <del>♋</del> 01'16	0°-18'-34
max. Earth dist.	1312 Nov 19 j 04:49	5° <del>♊</del> 02'25	20.05013 AU	min. Earth dist.	1319 Jun 17 j 01:53	3° <del>♋</del> 02'44	18.47867 AU
retrograde	1313 Mar 06 j 05:16	9° <del>♊</del> 12'51		direct	1319 Sep 02 j 17:32	1° <del>♋</del> 02'01	
opposition	1313 May 21 j 04:24	7° <del>♊</del> 12'55	0°02'52				
min. Earth dist.	1313 May 20 j 23:39	7° <del>♊</del> 13'24	18.08255 AU	conjunction	1319 Dec 19 j 05:30	5° <del>♋</del> 06'53	0°-18'-16
direct	1313 Aug 06 j 11:05	5° <del>♊</del> 11'14		minimum elong	1319 Dec 19 j 05:29	5° <del>♋</del> 06'53	0°18'17
				max. Earth dist.	1319 Dec 19 j 20:31	5° <del>♋</del> 09'07	20.50950 AU
conjunction	1313 Nov 23 j 13:26	9° <del>♊</del> 24'35	0°00'56	retrograde	1320 Apr 05 j 05:47	9° <del>♋</del> 12'46	
minimum elong	1313 Nov 23 j 13:26	9° <del>♊</del> 24'35	0°00'56	opposition	1320 Jun 21 j 08:06	7° <del>♋</del> 13'48	0°-21'-49
behind sun begin	1313 Nov 23 j 06:54	9° <del>♊</del> 23'37		min. Earth dist.	1320 Jun 20 j 16:11	7° <del>♋</del> 15'24	18.53957 AU
behind sun end	1313 Nov 23 j 19:59	9° <del>♊</del> 25'33		direct	1320 Sep 06 j 06:43	5° <del>♋</del> 14'52	
max. Earth dist.	1313 Nov 23 j 19:00	9° <del>♊</del> 25'24	20.11570 AU				
desc. node	1314 Mar 03 j 00:30	13° <del>♊</del> 33'14		conjunction	1320 Dec 22 j 14:06	9° <del>♋</del> 18'26	0°-21'-8
retrograde	1314 Mar 10 j 22:02	13° <del>♊</del> 34'51		minimum elong	1320 Dec 22 j 14:06	9° <del>♋</del> 18'26	0°21'09
opposition	1314 May 25 j 23:50	11° <del>♊</del> 35'03	0°00'-50	max. Earth dist.	1320 Dec 23 j 07:14	9° <del>♋</del> 20'58	20.56876 AU
min. Earth dist.	1314 May 25 j 16:17	11° <del>♊</del> 35'49	18.14876 AU	retrograde	1321 Apr 09 j 16:45	13° <del>♋</del> 23'39	
direct	1314 Aug 11 j 06:45	9° <del>♊</del> 33'46		opposition	1321 Jun 25 j 23:10	11° <del>♋</del> 24'45	0°-24'-56
				min. Earth dist.	1321 Jun 25 j 06:30	11° <del>♋</del> 26'25	18.59719 AU
conjunction	1314 Nov 28 j 01:58	13° <del>♊</del> 45'40	0°-2'-29	direct	1321 Sep 10 j 20:48	9° <del>♋</del> 26'06	
minimum elong	1314 Nov 28 j 01:57	13° <del>♊</del> 45'40	0°02'30				
behind sun begin	1314 Nov 27 j 19:25	13° <del>♊</del> 44'42		conjunction	1321 Dec 26 j 21:57	13° <del>♋</del> 28'23	0°-23'-53
behind sun end	1314 Nov 28 j 08:29	13° <del>♊</del> 46'37		minimum elong	1321 Dec 26 j 21:57	13° <del>♋</del> 28'23	0°23'55
max. Earth dist.	1314 Nov 28 j 10:26	13° <del>♊</del> 46'56	20.18240 AU	max. Earth dist.	1321 Dec 27 j 14:54	13° <del>♋</del> 30'53	20.62472 AU
retrograde	1315 Mar 15 j 11:24	17° <del>♊</del> 55'08		retrograde	1322 Apr 14 j 04:14	17° <del>♋</del> 32'59	
opposition	1315 May 30 j 18:55	15° <del>♊</del> 55'29	0°-4'-31	opposition	1322 Jun 30 j 13:31	15° <del>♋</del> 34'05	0°-27'-54
min. Earth dist.	1315 May 30 j 10:20	15° <del>♊</del> 56'22	18.21581 AU	min. Earth dist.	1322 Jun 29 j 19:50	15° <del>♋</del> 35'52	18.65156 AU
direct	1315 Aug 16 j 00:47	13° <del>♊</del> 54'39		direct	1322 Sep 15 j 08:34	13° <del>♋</del> 35'41	

conjunction	1322 Dec 31 j 05:25	17°☾36'44	0°-26'-30	opposition	1330 Aug 03 j 09:23	18°☾01'02	0°-44'-53
minimum elong	1322 Dec 31 j 05:25	17°☾36'44	0°26'31	direct	1330 Oct 18 j 10:19	16°☾04'20	
max. Earth dist.	1323 Jan 01 j 00:26	17°☾39'32	20.67739 AU				
retrograde	1323 Apr 18 j 14:16	21°☾40'44		conjunction	1331 Feb 01 j 01:52	19°☾58'21	0°-41'-11
min. Earth dist.	1323 Jul 04 j 08:36	19°☾43'41	18.70263 AU	minimum elong	1331 Feb 01 j 01:52	19°☾58'21	0°41'12
opposition	1323 Jul 05 j 03:13	19°☾41'49	0°-30'-42	max. Earth dist.	1331 Feb 02 j 03:07	20°☾02'00	20.99758 AU
direct	1323 Sep 19 j 21:08	17°☾43'39		retrograde	1331 May 21 j 17:10	23°☾59'38	
				opposition	1331 Aug 07 j 18:38	22°☾00'48	0°-46'-5
conjunction	1324 Jan 04 j 12:02	21°☾43'30	0°-28'-57	min. Earth dist.	1331 Aug 06 j 18:43	22°☾03'12	19.01094 AU
minimum elong	1324 Jan 04 j 12:02	21°☾43'30	0°28'59	direct	1331 Oct 22 j 18:05	20°☾04'19	
max. Earth dist.	1324 Jan 05 j 07:01	21°☾46'17	20.72698 AU				
retrograde	1324 Apr 22 j 00:53	25°☾46'57		conjunction	1332 Feb 05 j 06:41	23°☾57'51	0°-42'-10
opposition	1324 Jul 08 j 16:12	23°☾48'00	0°-33'-19	minimum elong	1332 Feb 05 j 06:41	23°☾57'51	0°42'11
min. Earth dist.	1324 Jul 07 j 20:43	23°☾49'57	18.75091 AU	max. Earth dist.	1332 Feb 06 j 06:58	24°☾01'21	21.02234 AU
direct	1324 Sep 23 j 07:45	21°☾50'00		retrograde	1332 May 25 j 01:39	27°☾59'05	
				min. Earth dist.	1332 Aug 10 j 04:31	26°☾02'35	19.03338 AU
conjunction	1325 Jan 07 j 18:28	25°☾48'46	0°-31'-14	opposition	1332 Aug 11 j 03:40	26°☾00'16	0°-47'-3
minimum elong	1325 Jan 07 j 18:28	25°☾48'46	0°31'15	direct	1332 Oct 25 j 23:13	24°☾03'55	
max. Earth dist.	1325 Jan 08 j 15:30	25°☾51'51	20.77379 AU				
retrograde	1325 Apr 26 j 10:03	29°☾51'41		conjunction	1333 Feb 08 j 11:48	27°☾57'04	0°-42'-56
min. Earth dist.	1325 Jul 12 j 07:45	27°☾54'46	18.79643 AU	minimum elong	1333 Feb 08 j 11:48	27°☾57'04	0°42'58
opposition	1325 Jul 13 j 04:16	27°☾52'43	0°-35'-45	max. Earth dist.	1333 Feb 09 j 12:55	28°☾00'41	21.04216 AU
direct	1325 Sep 27 j 18:22	25°☾54'56			1333 Mar 17 j 20:21	0°☾	
				retrograde	1333 May 29 j 10:38	1°☾58'16	
conjunction	1326 Jan 12 j 00:16	29°☾52'41	0°-33'-21	opposition	1333 Aug 15 j 12:09	29°☾59'27	0°-47'-47
minimum elong	1326 Jan 12 j 00:16	29°☾52'41	0°33'22	min. Earth dist.	1333 Aug 14 j 12:45	0°☾01'48	19.05051 AU
max. Earth dist.	1326 Jan 12 j 21:12	29°☾55'44	20.81808 AU		1333 Aug 15 j 06:41	30°☾	
	1326 Jan 14 j 02:21	0°☾		direct	1333 Oct 30 j 06:58	28°☾03'14	
retrograde	1326 Apr 30 j 19:48	3°☾55'09			1334 Jan 08 j 12:55	0°☾	
opposition	1326 Jul 17 j 15:59	1°☾56'11	0°-37'-59				
min. Earth dist.	1326 Jul 16 j 18:44	1°☾58'18	18.83963 AU	conjunction	1334 Feb 12 j 16:50	1°☾56'04	0°-43'-31
	1326 Sep 24 j 17:35	30°☾		minimum elong	1334 Feb 12 j 16:50	1°☾56'03	0°43'32
direct	1326 Oct 02 j 03:25	29°☾58'36		max. Earth dist.	1334 Feb 13 j 16:30	1°☾59'27	21.05657 AU
	1326 Oct 09 j 13:30	0°☾		retrograde	1334 Jun 02 j 19:13	5°☾57'17	
				opposition	1334 Aug 19 j 20:39	3°☾58'25	0°-48'-18
conjunction	1327 Jan 16 j 05:46	3°☾55'25	0°-35'-18	min. Earth dist.	1334 Aug 18 j 22:19	4°☾00'39	19.06219 AU
minimum elong	1327 Jan 16 j 05:46	3°☾55'25	0°35'19	direct	1334 Nov 03 j 11:42	2°☾02'14	
max. Earth dist.	1327 Jan 17 j 04:45	3°☾58'46	20.85996 AU				
retrograde	1327 May 05 j 04:51	7°☾57'31		conjunction	1335 Feb 16 j 22:02	5°☾54'49	0°-43'-53
min. Earth dist.	1327 Jul 21 j 04:41	6°☾00'48	18.88020 AU	minimum elong	1335 Feb 16 j 22:02	5°☾54'49	0°43'53
opposition	1327 Jul 22 j 03:05	5°☾58'33	0°-40'-2	max. Earth dist.	1335 Feb 17 j 22:17	5°☾58'17	21.06542 AU
direct	1327 Oct 06 j 12:36	4°☾01'12		retrograde	1335 Jun 07 j 03:27	9°☾56'05	
				min. Earth dist.	1335 Aug 23 j 06:10	7°☾59'23	19.06815 AU
conjunction	1328 Jan 20 j 10:58	7°☾57'11	0°-37'-3	opposition	1335 Aug 24 j 04:41	7°☾57'08	0°-48'-35
minimum elong	1328 Jan 20 j 10:58	7°☾57'11	0°37'03	direct	1335 Nov 07 j 19:17	6°☾00'59	
max. Earth dist.	1328 Jan 21 j 09:40	8°☾00'28	20.89920 AU				
retrograde	1328 May 08 j 13:56	11°☾58'59		conjunction	1336 Feb 21 j 03:16	9°☾53'21	0°-44'-1
opposition	1328 Jul 25 j 13:34	10°☾00'03	0°-41'-51	minimum elong	1336 Feb 21 j 03:16	9°☾53'21	0°44'03
min. Earth dist.	1328 Jul 24 j 14:56	10°☾02'18	18.91814 AU	max. Earth dist.	1336 Feb 22 j 01:55	9°☾56'35	21.06872 AU
direct	1328 Oct 09 j 19:59	8°☾02'54		retrograde	1336 Jun 10 j 11:55	13°☾54'42	
				opposition	1336 Aug 27 j 12:21	11°☾55'37	0°-48'-37
conjunction	1329 Jan 23 j 16:07	11°☾58'09	0°-38'-37	min. Earth dist.	1336 Aug 26 j 15:12	11°☾57'44	19.06888 AU
minimum elong	1329 Jan 23 j 16:07	11°☾58'09	0°38'38	direct	1336 Nov 10 j 23:50	9°☾59'25	
max. Earth dist.	1329 Jan 24 j 16:31	12°☾01'41	20.93554 AU				
	1329 Mar 23 j 20:05	15°☾		conjunction	1337 Feb 24 j 08:44	13°☾51'41	0°-43'-57
retrograde	1329 May 12 j 23:08	15°☾59'42		minimum elong	1337 Feb 24 j 08:44	13°☾51'41	0°43'58
	1329 Jul 04 j 02:35	15°☾		max. Earth dist.	1337 Feb 25 j 07:56	13°☾55'00	21.06697 AU
opposition	1329 Jul 29 j 23:37	14°☾00'49	0°-43'-29	retrograde	1337 Jun 14 j 19:29	17°☾53'09	
min. Earth dist.	1329 Jul 29 j 00:05	14°☾03'10	18.95279 AU	opposition	1337 Aug 31 j 19:45	15°☾53'56	0°-48'-26
direct	1329 Oct 14 j 04:13	12°☾03'54		min. Earth dist.	1337 Aug 30 j 22:21	15°☾56'05	19.06472 AU
	1330 Jan 10 j 20:47	15°☾		direct	1337 Nov 15 j 06:30	13°☾57'41	
conjunction	1330 Jan 27 j 20:52	15°☾58'29	0°-40'00	conjunction	1338 Feb 28 j 14:03	17°☾49'55	0°-43'-40
minimum elong	1330 Jan 27 j 20:52	15°☾58'29	0°40'00	minimum elong	1338 Feb 28 j 14:03	17°☾49'55	0°43'42
max. Earth dist.	1330 Jan 28 j 20:45	16°☾01'56	20.96844 AU	max. Earth dist.	1338 Mar 01 j 11:48	17°☾53'01	21.06065 AU
retrograde	1330 May 17 j 07:45	19°☾59'53		retrograde	1338 Jun 19 j 03:30	21°☾51'35	
min. Earth dist.	1330 Aug 02 j 10:02	18°☾03'21	18.98393 AU	min. Earth dist.	1338 Sep 04 j 07:00	19°☾54'14	19.05640 AU

opposition	1338 Sep 05 j 03:06	19° <del>✕</del> 52'12	0°-48'00	min. Earth dist.	1346 Oct 06 j 23:44	21° <del>Υ</del> 56'39	18.85763 AU
direct	1338 Nov 19 j 11:07	17° <del>✕</del> 55'52		direct	1346 Dec 21 j 05:27	19° <del>Υ</del> 58'09	
conjunction	1339 Mar 04 j 19:55	21° <del>✕</del> 48'10	0°-43'-11	conjunction	1347 Apr 06 j 10:51	23° <del>Υ</del> 54'29	0°-32'-6
minimum elong	1339 Mar 04 j 19:55	21° <del>✕</del> 48'10	0°43'12	minimum elong	1347 Apr 06 j 10:52	23° <del>Υ</del> 54'29	0°32'07
max. Earth dist.	1339 Mar 05 j 18:14	21° <del>✕</del> 51'22	21.05037 AU	max. Earth dist.	1347 Apr 07 j 00:33	23° <del>Υ</del> 56'27	20.83649 AU
retrograde	1339 Jun 23 j 11:37	25° <del>✕</del> 50'04		retrograde	1347 Jul 26 j 16:25	28° <del>Υ</del> 00'19	
opposition	1339 Sep 09 j 10:02	23° <del>✕</del> 50'33	0°-47'-21	opposition	1347 Oct 11 j 19:39	26° <del>Υ</del> 00'03	0°-34'-16
min. Earth dist.	1339 Sep 08 j 13:41	23° <del>✕</del> 52'36	19.04419 AU	min. Earth dist.	1347 Oct 11 j 08:04	26° <del>Υ</del> 01'15	18.81431 AU
direct	1339 Nov 23 j 16:59	21° <del>✕</del> 54'08		direct	1347 Dec 25 j 13:12	24° <del>Υ</del> 02'35	
conjunction	1340 Mar 08 j 01:57	25° <del>✕</del> 46'36	0°-42'-29	conjunction	1348 Apr 09 j 21:39	27° <del>Υ</del> 59'47	0°-29'-52
minimum elong	1340 Mar 08 j 01:57	25° <del>✕</del> 46'36	0°42'31	minimum elong	1348 Apr 09 j 21:39	27° <del>Υ</del> 59'47	0°29'54
max. Earth dist.	1340 Mar 08 j 22:40	25° <del>✕</del> 49'33	21.03637 AU	max. Earth dist.	1348 Apr 10 j 08:33	28° <del>Υ</del> 01'20	20.79085 AU
retrograde	1340 Jun 26 j 19:22	29° <del>✕</del> 48'48			1348 May 16 j 04:57	0° <del>8</del>	
opposition	1340 Sep 12 j 17:03	27° <del>✕</del> 49'10	0°-46'-28	retrograde	1348 Jul 30 j 02:49	2° <del>8</del> 06'17	
min. Earth dist.	1340 Sep 11 j 22:12	27° <del>✕</del> 51'04	19.02844 AU	opposition	1348 Oct 15 j 03:51	0° <del>8</del> 05'52	0°-31'-43
direct	1340 Nov 26 j 21:17	25° <del>✕</del> 52'38		min. Earth dist.	1348 Oct 14 j 18:53	0° <del>8</del> 06'47	18.76640 AU
					1348 Oct 17 j 12:43	30° <del>8</del> <del>Υ</del>	
conjunction	1341 Mar 12 j 08:26	29° <del>✕</del> 45'22	0°-41'-35	direct	1348 Dec 28 j 19:11	28° <del>Υ</del> 08'06	
minimum elong	1341 Mar 12 j 08:26	29° <del>✕</del> 45'22	0°41'37		1349 Mar 07 j 01:35	0° <del>8</del>	
max. Earth dist.	1341 Mar 13 j 05:32	29° <del>✕</del> 48'23	21.01886 AU				
	1341 Mar 16 j 14:47	0° <del>Υ</del>		conjunction	1349 Apr 14 j 09:04	2° <del>8</del> 06'14	0°-27'-29
retrograde	1341 Jul 01 j 04:28	3° <del>Υ</del> 47'55		minimum elong	1349 Apr 14 j 09:04	2° <del>8</del> 06'14	0°27'29
opposition	1341 Sep 16 j 23:50	1° <del>Υ</del> 48'11	0°-45'-22	max. Earth dist.	1349 Apr 14 j 19:02	2° <del>8</del> 07'40	20.74088 AU
min. Earth dist.	1341 Sep 16 j 04:50	1° <del>Υ</del> 50'06	19.00914 AU	retrograde	1349 Aug 03 j 15:28	6° <del>8</del> 13'26	
	1341 Nov 12 j 21:10	30° <del>8</del> <del>✕</del>		opposition	1349 Oct 19 j 12:06	4° <del>8</del> 12'50	0°-28'-59
direct	1341 Dec 01 j 03:09	29° <del>✕</del> 51'35		min. Earth dist.	1349 Oct 19 j 03:44	4° <del>8</del> 13'42	18.71434 AU
	1341 Dec 19 j 02:24	0° <del>Υ</del>		direct	1350 Jan 02 j 04:02	2° <del>8</del> 14'46	
conjunction	1342 Mar 16 j 15:15	3° <del>Υ</del> 44'40	0°-40'-30	conjunction	1350 Apr 18 j 21:08	6° <del>8</del> 13'54	0°-24'-56
minimum elong	1342 Mar 16 j 15:15	3° <del>Υ</del> 44'40	0°40'30	minimum elong	1350 Apr 18 j 21:08	6° <del>8</del> 13'54	0°24'58
max. Earth dist.	1342 Mar 17 j 10:35	3° <del>Υ</del> 47'26	20.99793 AU	max. Earth dist.	1350 Apr 19 j 04:33	6° <del>8</del> 14'57	20.68707 AU
retrograde	1342 Jul 05 j 12:29	7° <del>Υ</del> 47'39		retrograde	1350 Aug 08 j 02:26	10° <del>8</del> 21'48	
opposition	1342 Sep 21 j 06:52	5° <del>Υ</del> 47'49	0°-44'-2	opposition	1350 Oct 23 j 20:45	8° <del>8</del> 21'01	0°-26'-5
min. Earth dist.	1342 Sep 20 j 13:34	5° <del>Υ</del> 49'34	18.98652 AU	min. Earth dist.	1350 Oct 23 j 14:58	8° <del>8</del> 21'37	18.65892 AU
direct	1342 Dec 05 j 07:06	3° <del>Υ</del> 51'06		direct	1351 Jan 06 j 10:31	6° <del>8</del> 22'36	
conjunction	1343 Mar 20 j 22:41	7° <del>Υ</del> 44'40	0°-39'-12	conjunction	1351 Apr 23 j 10:03	10° <del>8</del> 22'48	0°-22'-15
minimum elong	1343 Mar 20 j 22:41	7° <del>Υ</del> 44'40	0°39'13	minimum elong	1351 Apr 23 j 10:03	10° <del>8</del> 22'48	0°22'15
max. Earth dist.	1343 Mar 21 j 18:09	7° <del>Υ</del> 47'27	20.97362 AU	max. Earth dist.	1351 Apr 23 j 16:29	10° <del>8</del> 23'43	20.63028 AU
retrograde	1343 Jul 09 j 22:47	11° <del>Υ</del> 48'07		retrograde	1351 Aug 12 j 16:28	14° <del>8</del> 31'26	
opposition	1343 Sep 25 j 13:50	9° <del>Υ</del> 48'13	0°-42'-30	opposition	1351 Oct 28 j 05:33	12° <del>8</del> 30'27	0°-23'-3
min. Earth dist.	1343 Sep 24 j 20:38	9° <del>Υ</del> 49'57	18.96029 AU	min. Earth dist.	1351 Oct 28 j 00:18	12° <del>8</del> 31'00	18.60073 AU
direct	1343 Dec 09 j 13:19	7° <del>Υ</del> 51'24		direct	1352 Jan 10 j 20:19	10° <del>8</del> 31'41	
conjunction	1344 Mar 24 j 06:41	11° <del>Υ</del> 45'31	0°-37'-42	conjunction	1352 Apr 26 j 23:35	14° <del>8</del> 33'02	0°-19'-25
minimum elong	1344 Mar 24 j 06:41	11° <del>Υ</del> 45'31	0°37'43	minimum elong	1352 Apr 26 j 23:35	14° <del>8</del> 33'02	0°19'27
max. Earth dist.	1344 Mar 25 j 00:01	11° <del>Υ</del> 48'00	20.94557 AU	max. Earth dist.	1352 Apr 27 j 03:37	14° <del>8</del> 33'36	20.57091 AU
retrograde	1344 Jul 13 j 07:29	15° <del>Υ</del> 49'31			1352 May 04 j 17:35	15° <del>8</del>	
opposition	1344 Sep 28 j 20:57	13° <del>Υ</del> 49'32	0°-40'-45	retrograde	1352 Aug 16 j 04:11	18° <del>8</del> 42'26	
min. Earth dist.	1344 Sep 28 j 05:53	13° <del>Υ</del> 51'04	18.93032 AU	opposition	1352 Oct 31 j 14:48	16° <del>8</del> 41'16	0°-19'-52
direct	1344 Dec 12 j 17:31	11° <del>Υ</del> 52'36		min. Earth dist.	1352 Oct 31 j 12:03	16° <del>8</del> 41'33	18.54043 AU
					1352 Dec 18 j 19:41	15° <del>8</del> <del>8</del>	
conjunction	1345 Mar 28 j 15:26	15° <del>Υ</del> 47'23	0°-36'-1	direct	1353 Jan 14 j 03:42	14° <del>8</del> 42'07	
minimum elong	1345 Mar 28 j 15:26	15° <del>Υ</del> 47'23	0°36'03		1353 Feb 09 j 06:39	15° <del>8</del>	
max. Earth dist.	1345 Mar 29 j 08:26	15° <del>Υ</del> 49'49	20.91364 AU				
retrograde	1345 Jul 17 j 18:44	19° <del>Υ</del> 51'57		conjunction	1353 May 01 j 13:57	18° <del>8</del> 44'41	0°-16'-29
opposition	1345 Oct 03 j 04:14	17° <del>Υ</del> 51'54	0°-38'-47	minimum elong	1353 May 01 j 13:58	18° <del>8</del> 44'41	0°16'30
min. Earth dist.	1345 Oct 02 j 13:33	17° <del>Υ</del> 53'24	18.89620 AU	max. Earth dist.	1353 May 01 j 16:57	18° <del>8</del> 45'07	20.50987 AU
direct	1345 Dec 17 j 00:19	15° <del>Υ</del> 54'50		retrograde	1353 Aug 20 j 19:26	22° <del>8</del> 54'53	
				opposition	1353 Nov 05 j 00:23	20° <del>8</del> 53'32	0°-16'-33
conjunction	1346 Apr 02 j 00:37	19° <del>Υ</del> 50'21	0°-34'-9	min. Earth dist.	1353 Nov 04 j 22:03	20° <del>8</del> 53'47	18.47867 AU
minimum elong	1346 Apr 02 j 00:37	19° <del>Υ</del> 50'21	0°34'10	direct	1354 Jan 18 j 14:07	18° <del>8</del> 54'02	
max. Earth dist.	1346 Apr 02 j 15:09	19° <del>Υ</del> 52'26	20.87734 AU				
retrograde	1346 Jul 22 j 04:26	23° <del>Υ</del> 55'34		conjunction	1354 May 06 j 04:58	22° <del>8</del> 57'53	0°-13'-27
opposition	1346 Oct 07 j 11:58	21° <del>Υ</del> 55'24	0°-36'-38	minimum elong	1354 May 06 j 04:58	22° <del>8</del> 57'53	0°13'28

behind sun begin	1354 May 06 j 01:19	22°♄57'21		retrograde	1360 Sep 20 j 12:39	23°♄11'37	
behind sun end	1354 May 06 j 08:37	22°♄58'24		opposition	1360 Dec 04 j 12:04	21°♄09'34	0°08'45
max. Earth dist.	1354 May 06 j 05:48	22°♄58'00	20.44752 AU	min. Earth dist.	1360 Dec 04 j 21:33	21°♄08'33	18.03057 AU
retrograde	1354 Aug 25 j 08:47	27°♄08'55		direct	1361 Feb 17 j 03:22	19°♄07'36	
opposition	1354 Nov 09 j 10:39	25°♄07'25	0°-13'-8				
min. Earth dist.	1354 Nov 09 j 10:43	25°♄07'24	18.41590 AU	conjunction	1361 Jun 06 j 16:38	23°♄21'47	0°09'35
direct	1355 Jan 22 j 22:59	23°♄07'32		minimum elong	1361 Jun 06 j 16:38	23°♄21'47	0°09'35
				behind sun begin	1361 Jun 06 j 11:05	23°♄20'59	
conjunction	1355 May 10 j 21:03	27°♄12'44	0°-10'-20	behind sun end	1361 Jun 06 j 22:12	23°♄22'36	
minimum elong	1355 May 10 j 21:04	27°♄12'44	0°10'21	max. Earth dist.	1361 Jun 06 j 04:11	23°♄19'56	19.99793 AU
behind sun begin	1355 May 10 j 15:48	27°♄11'59		retrograde	1361 Sep 25 j 07:29	27°♄38'48	
behind sun end	1355 May 11 j 02:20	27°♄13'29		opposition	1361 Dec 09 j 02:38	25°♄36'38	0°12'27
max. Earth dist.	1355 May 10 j 20:36	27°♄12'40	20.38449 AU	min. Earth dist.	1361 Dec 09 j 13:04	25°♄35'30	17.96498 AU
	1355 Jul 01 j 16:24	0°♄		direct	1362 Feb 21 j 20:09	23°♄34'14	
retrograde	1355 Aug 30 j 00:53	1°♄24'36					
	1355 Oct 30 j 01:11	30°♄		conjunction	1362 Jun 11 j 15:04	27°♄49'57	0°12'53
opposition	1355 Nov 13 j 21:08	29°♄22'59	0°-9'-38	minimum elong	1362 Jun 11 j 15:03	27°♄49'57	0°12'52
min. Earth dist.	1355 Nov 13 j 21:42	29°♄22'55	18.35256 AU	behind sun begin	1362 Jun 11 j 11:01	27°♄49'21	
direct	1356 Jan 27 j 10:17	27°♄22'46		behind sun end	1362 Jun 11 j 19:06	27°♄50'32	
	1356 Apr 18 j 16:54	0°♄		max. Earth dist.	1362 Jun 11 j 01:12	27°♄47'53	19.93226 AU
					1362 Jul 19 j 07:11	0°♄	
conjunction	1356 May 14 j 13:59	1°♄29'22	0°-7'-9	retrograde	1362 Sep 30 j 01:59	2°♄07'42	
minimum elong	1356 May 14 j 13:59	1°♄29'22	0°07'09	opposition	1362 Dec 13 j 18:00	0°♄05'26	0°16'06
behind sun begin	1356 May 14 j 07:46	1°♄28'29		min. Earth dist.	1362 Dec 14 j 06:38	0°♄04'04	17.89949 AU
behind sun end	1356 May 14 j 20:11	1°♄30'16			1362 Dec 15 j 20:20	30°♄	
max. Earth dist.	1356 May 14 j 11:29	1°♄29'02	20.32091 AU	direct	1363 Feb 26 j 12:29	28°♄02'37	
retrograde	1356 Sep 02 j 15:51	5°♄42'07			1363 May 06 j 20:48	0°♄	
opposition	1356 Nov 17 j 08:31	3°♄40'23	0°-6'-2				
min. Earth dist.	1356 Nov 17 j 11:28	3°♄40'04	18.28886 AU	conjunction	1363 Jun 16 j 14:12	2°♄19'49	0°16'07
direct	1357 Jan 30 j 20:43	1°♄39'50		minimum elong	1363 Jun 16 j 14:12	2°♄19'49	0°16'08
				max. Earth dist.	1363 Jun 15 j 21:43	2°♄17'21	19.86720 AU
conjunction	1357 May 19 j 07:41	5°♄47'54	0°-3'-53	retrograde	1363 Oct 04 j 21:53	6°♄38'19	
minimum elong	1357 May 19 j 07:41	5°♄47'54	0°03'55	opposition	1363 Dec 18 j 09:49	4°♄35'54	0°19'40
behind sun begin	1357 May 19 j 01:00	5°♄46'56		min. Earth dist.	1363 Dec 18 j 23:26	4°♄34'26	17.83502 AU
behind sun end	1357 May 19 j 14:21	5°♄48'52		direct	1364 Mar 02 j 07:13	2°♄32'39	
max. Earth dist.	1357 May 19 j 03:40	5°♄47'21	20.25720 AU				
retrograde	1357 Sep 07 j 09:01	10°♄01'31		conjunction	1364 Jun 20 j 14:07	6°♄51'21	0°19'17
opposition	1357 Nov 21 j 20:20	7°♄59'43	0°-2'-23	minimum elong	1364 Jun 20 j 14:07	6°♄51'21	0°19'17
min. Earth dist.	1357 Nov 21 j 23:53	7°♄59'20	18.22499 AU	max. Earth dist.	1364 Jun 19 j 20:54	6°♄48'45	19.80336 AU
direct	1358 Feb 04 j 09:31	5°♄58'51		retrograde	1364 Oct 08 j 17:27	11°♄10'31	
				opposition	1364 Dec 22 j 02:29	9°♄08'00	0°23'09
conjunction	1358 May 24 j 02:32	10°♄08'25	0°00'-31	min. Earth dist.	1364 Dec 22 j 17:46	9°♄06'20	17.77217 AU
minimum elong	1358 May 24 j 02:30	10°♄08'25	0°00'32	direct	1365 Mar 07 j 01:06	7°♄04'19	
behind sun begin	1358 May 23 j 19:45	10°♄07'26					
behind sun end	1358 May 24 j 09:15	10°♄09'23		conjunction	1365 Jun 25 j 14:20	11°♄24'27	0°22'21
max. Earth dist.	1358 May 23 j 20:35	10°♄07'34	20.19310 AU	minimum elong	1365 Jun 25 j 14:20	11°♄24'27	0°22'21
asc. node	1358 Jul 20 j 07:15	13°♄11'31		max. Earth dist.	1365 Jun 24 j 18:45	11°♄21'28	19.74169 AU
retrograde	1358 Sep 12 j 01:12	14°♄22'55		retrograde	1365 Oct 13 j 14:16	15°♄44'18	
opposition	1358 Nov 26 j 08:52	12°♄21'02	0°01'18	opposition	1365 Dec 26 j 19:42	13°♄41'39	0°26'30
min. Earth dist.	1358 Nov 26 j 14:59	12°♄20'23	18.16073 AU	min. Earth dist.	1365 Dec 27 j 11:54	13°♄39'53	17.71189 AU
direct	1359 Feb 08 j 21:57	10°♄19'49		direct	1366 Mar 11 j 21:11	11°♄37'33	
conjunction	1359 May 28 j 22:20	14°♄30'56	0°02'54	conjunction	1366 Jun 30 j 15:30	15°♄59'06	0°25'17
minimum elong	1359 May 28 j 22:22	14°♄30'56	0°02'54	minimum elong	1366 Jun 30 j 15:30	15°♄59'06	0°25'17
behind sun begin	1359 May 28 j 15:37	14°♄29'57		max. Earth dist.	1366 Jun 29 j 19:46	15°♄56'06	19.68277 AU
behind sun end	1359 May 29 j 05:07	14°♄31'55		retrograde	1366 Oct 18 j 11:15	20°♄19'34	
max. Earth dist.	1359 May 28 j 14:16	14°♄29'45	20.12865 AU	opposition	1366 Dec 31 j 13:33	18°♄16'50	0°29'41
retrograde	1359 Sep 16 j 19:17	18°♄46'18		min. Earth dist.	1367 Jan 01 j 06:53	18°♄14'56	17.65468 AU
opposition	1359 Nov 30 j 22:04	16°♄44'21	0°05'01	direct	1367 Mar 16 j 16:53	16°♄12'21	
min. Earth dist.	1359 Dec 01 j 05:05	16°♄43'36	18.09599 AU				
direct	1360 Feb 13 j 12:42	14°♄42'46		conjunction	1367 Jul 05 j 17:04	20°♄35'16	0°28'04
				minimum elong	1367 Jul 05 j 17:04	20°♄35'16	0°28'03
conjunction	1360 Jun 01 j 19:05	18°♄55'25	0°06'15	max. Earth dist.	1367 Jul 04 j 19:06	20°♄31'55	19.62741 AU
minimum elong	1360 Jun 01 j 19:05	18°♄55'25	0°06'15	retrograde	1367 Oct 23 j 08:52	24°♄56'19	
behind sun begin	1360 Jun 01 j 12:41	18°♄54'29		opposition	1368 Jan 05 j 08:10	22°♄53'31	0°32'42
behind sun end	1360 Jun 02 j 01:29	18°♄56'21		min. Earth dist.	1368 Jan 06 j 02:20	22°♄51'32	17.60145 AU
max. Earth dist.	1360 Jun 01 j 09:10	18°♄53'57	20.06345 AU	direct	1368 Mar 20 j 13:42	20°♄48'41	



conjunction	1368 Jul 09 j 19:09	25° $\mathring{S}$ 12'56	0°30'40		1376 Feb 25 j 07:23	30° $\mathring{R}$ $\mathring{L}$	
minimum elong	1368 Jul 09 j 19:09	25° $\mathring{S}$ 12'56	0°30'41	direct	1376 Apr 27 j 12:34	28° $\mathring{L}$ 29'24	
max. Earth dist.	1368 Jul 08 j 21:33	25° $\mathring{S}$ 09'37	19.57621 AU		1376 Jun 26 j 12:48	0° $\mathring{M}$	
retrograde	1368 Oct 27 j 07:44	29° $\mathring{S}$ 34'31		max. Earth dist.	1376 Aug 16 j 22:55	2° $\mathring{M}$ 56'53	19.33393 AU
opposition	1369 Jan 09 j 03:30	27° $\mathring{S}$ 31'42	0°35'31				
min. Earth dist.	1369 Jan 09 j 22:06	27° $\mathring{S}$ 29'40	17.55255 AU	conjunction	1376 Aug 18 j 00:31	3° $\mathring{M}$ 00'54	0°43'25
direct	1369 Mar 25 j 11:07	25° $\mathring{S}$ 26'35		minimum elong	1376 Aug 18 j 00:31	3° $\mathring{M}$ 00'54	0°43'25
				retrograde	1376 Dec 04 j 04:41	7° $\mathring{M}$ 24'33	
conjunction	1369 Jul 14 j 21:39	29° $\mathring{S}$ 52'05	0°33'06	opposition	1377 Feb 15 j 13:16	5° $\mathring{M}$ 22'11	0°48'39
minimum elong	1369 Jul 14 j 21:39	29° $\mathring{S}$ 52'05	0°33'05	min. Earth dist.	1377 Feb 16 j 10:31	5° $\mathring{M}$ 19'51	17.32866 AU
max. Earth dist.	1369 Jul 13 j 22:12	29° $\mathring{S}$ 48'29	19.52972 AU	direct	1377 May 02 j 17:19	3° $\mathring{M}$ 15'52	
	1369 Jul 17 j 01:00	0° $\mathring{L}$		max. Earth dist.	1377 Aug 22 j 03:37	7° $\mathring{M}$ 43'45	19.32369 AU
retrograde	1369 Nov 01 j 05:56	4° $\mathring{L}$ 14'11					
opposition	1370 Jan 13 j 23:25	2° $\mathring{L}$ 11'23	0°38'07	conjunction	1377 Aug 23 j 04:31	7° $\mathring{M}$ 47'39	0°43'46
min. Earth dist.	1370 Jan 14 j 18:55	2° $\mathring{L}$ 09'15	17.50863 AU	minimum elong	1377 Aug 23 j 04:31	7° $\mathring{M}$ 47'39	0°43'45
direct	1370 Mar 30 j 08:09	0° $\mathring{L}$ 06'00		retrograde	1377 Dec 09 j 03:26	12° $\mathring{M}$ 11'10	
max. Earth dist.	1370 Jul 19 j 01:49	4° $\mathring{L}$ 29'11	19.48821 AU	opposition	1378 Feb 20 j 13:41	10° $\mathring{M}$ 08'50	0°48'52
				min. Earth dist.	1378 Feb 21 j 11:46	10° $\mathring{M}$ 06'25	17.32094 AU
conjunction	1370 Jul 20 j 00:47	4° $\mathring{L}$ 32'44	0°35'19	direct	1378 May 07 j 19:28	8° $\mathring{M}$ 02'26	
minimum elong	1370 Jul 20 j 00:47	4° $\mathring{L}$ 32'44	0°35'19	max. Earth dist.	1378 Aug 27 j 07:04	12° $\mathring{M}$ 30'26	19.31860 AU
retrograde	1370 Nov 06 j 06:39	8° $\mathring{L}$ 55'16					
opposition	1371 Jan 18 j 20:04	6° $\mathring{L}$ 52'32	0°40'29	conjunction	1378 Aug 28 j 08:09	12° $\mathring{M}$ 34'23	0°43'48
min. Earth dist.	1371 Jan 19 j 15:42	6° $\mathring{L}$ 50'23	17.46949 AU	minimum elong	1378 Aug 28 j 08:09	12° $\mathring{M}$ 34'23	0°43'49
direct	1371 Apr 04 j 07:27	4° $\mathring{L}$ 46'58		retrograde	1378 Dec 14 j 04:28	16° $\mathring{M}$ 57'41	
max. Earth dist.	1371 Jul 24 j 03:44	9° $\mathring{L}$ 11'01	19.45144 AU	opposition	1379 Feb 25 j 14:21	14° $\mathring{M}$ 55'22	0°48'45
				min. Earth dist.	1379 Feb 26 j 11:02	14° $\mathring{M}$ 53'07	17.31844 AU
conjunction	1371 Jul 25 j 04:12	9° $\mathring{L}$ 14'48	0°37'19	direct	1379 May 13 j 00:07	12° $\mathring{M}$ 48'54	
minimum elong	1371 Jul 25 j 04:12	9° $\mathring{L}$ 14'48	0°37'20	max. Earth dist.	1379 Sep 01 j 11:58	17° $\mathring{M}$ 17'10	19.31880 AU
retrograde	1371 Nov 11 j 04:52	13° $\mathring{L}$ 37'45					
opposition	1372 Jan 23 j 17:28	11° $\mathring{L}$ 35'05	0°42'35	conjunction	1379 Sep 02 j 11:23	17° $\mathring{M}$ 20'51	0°43'33
min. Earth dist.	1372 Jan 24 j 14:14	11° $\mathring{L}$ 32'48	17.43519 AU	minimum elong	1379 Sep 02 j 11:23	17° $\mathring{M}$ 20'51	0°43'33
direct	1372 Apr 08 j 05:44	9° $\mathring{L}$ 29'21		retrograde	1379 Dec 19 j 03:21	21° $\mathring{M}$ 43'51	
max. Earth dist.	1372 Jul 28 j 07:54	13° $\mathring{L}$ 54'27	19.41938 AU	opposition	1380 Mar 01 j 15:24	19° $\mathring{M}$ 41'35	0°48'18
				min. Earth dist.	1380 Mar 02 j 12:16	19° $\mathring{M}$ 39'19	17.32151 AU
conjunction	1372 Jul 29 j 08:02	13° $\mathring{L}$ 58'12	0°39'05	direct	1380 May 17 j 02:24	17° $\mathring{M}$ 35'07	
minimum elong	1372 Jul 29 j 08:02	13° $\mathring{L}$ 58'12	0°39'05				
	1372 Aug 15 j 00:27	15° $\mathring{L}$		conjunction	1380 Sep 06 j 14:01	22° $\mathring{M}$ 06'54	0°42'59
retrograde	1372 Nov 15 j 06:01	18° $\mathring{L}$ 21'28		minimum elong	1380 Sep 06 j 14:01	22° $\mathring{M}$ 06'54	0°42'59
opposition	1373 Jan 27 j 15:28	16° $\mathring{L}$ 18'52	0°44'25	max. Earth dist.	1380 Sep 05 j 14:41	22° $\mathring{M}$ 03'13	19.32494 AU
min. Earth dist.	1373 Jan 28 j 12:00	16° $\mathring{L}$ 16'37	17.40532 AU	retrograde	1380 Dec 23 j 03:56	26° $\mathring{M}$ 29'33	
	1373 Mar 01 j 03:00	15° $\mathring{R}$ $\mathring{L}$		opposition	1381 Mar 06 j 16:23	24° $\mathring{M}$ 27'20	0°47'30
direct	1373 Apr 13 j 07:04	14° $\mathring{L}$ 13'02		min. Earth dist.	1381 Mar 07 j 11:30	24° $\mathring{M}$ 25'16	17.33073 AU
	1373 May 25 j 18:16	15° $\mathring{L}$		direct	1381 May 22 j 06:36	22° $\mathring{M}$ 20'53	
max. Earth dist.	1373 Aug 02 j 10:48	18° $\mathring{L}$ 38'50	19.39161 AU				
				conjunction	1381 Sep 11 j 16:16	26° $\mathring{M}$ 52'23	0°42'08
conjunction	1373 Aug 03 j 11:57	18° $\mathring{L}$ 42'45	0°40'35	minimum elong	1381 Sep 11 j 16:16	26° $\mathring{M}$ 52'23	0°42'08
minimum elong	1373 Aug 03 j 11:57	18° $\mathring{L}$ 42'45	0°40'36	max. Earth dist.	1381 Sep 10 j 19:18	26° $\mathring{M}$ 49'05	19.33726 AU
retrograde	1373 Nov 20 j 04:12	23° $\mathring{L}$ 06'15			1381 Nov 05 j 13:56	0° $\mathring{L}$	
opposition	1374 Feb 01 j 14:14	21° $\mathring{L}$ 03'43	0°45'57	retrograde	1381 Dec 28 j 02:40	1° $\mathring{L}$ 14'38	
min. Earth dist.	1374 Feb 02 j 12:01	21° $\mathring{L}$ 01'20	17.37978 AU		1382 Feb 20 j 23:09	30° $\mathring{R}$ $\mathring{M}$	
direct	1374 Apr 18 j 07:18	18° $\mathring{L}$ 57'44		opposition	1382 Mar 11 j 17:40	29° $\mathring{M}$ 12'30	0°46'24
				min. Earth dist.	1382 Mar 12 j 12:19	29° $\mathring{M}$ 10'29	17.34616 AU
conjunction	1374 Aug 08 j 16:14	23° $\mathring{L}$ 28'13	0°41'49	direct	1382 May 27 j 09:04	27° $\mathring{M}$ 06'10	
minimum elong	1374 Aug 08 j 16:14	23° $\mathring{L}$ 28'13	0°41'48		1382 Aug 21 j 10:35	0° $\mathring{L}$	
max. Earth dist.	1374 Aug 07 j 15:02	23° $\mathring{L}$ 24'16	19.36813 AU				
retrograde	1374 Nov 25 j 05:16	27° $\mathring{L}$ 51'50		conjunction	1382 Sep 16 j 17:51	1° $\mathring{L}$ 37'16	0°41'00
opposition	1375 Feb 06 j 13:20	25° $\mathring{L}$ 49'23	0°47'11	minimum elong	1382 Sep 16 j 17:51	1° $\mathring{L}$ 37'16	0°40'59
min. Earth dist.	1375 Feb 07 j 10:32	25° $\mathring{L}$ 47'03	17.35834 AU	max. Earth dist.	1382 Sep 15 j 21:10	1° $\mathring{L}$ 34'00	19.35596 AU
direct	1375 Apr 23 j 11:02	23° $\mathring{L}$ 43'17		retrograde	1383 Jan 02 j 02:28	5° $\mathring{L}$ 59'03	
				opposition	1383 Mar 16 j 18:52	3° $\mathring{L}$ 57'03	0°44'58
conjunction	1375 Aug 13 j 20:32	28° $\mathring{L}$ 14'21	0°42'46	min. Earth dist.	1383 Mar 17 j 11:42	3° $\mathring{L}$ 55'14	17.36804 AU
minimum elong	1375 Aug 13 j 20:32	28° $\mathring{L}$ 14'21	0°42'45	direct	1383 Jun 01 j 12:54	1° $\mathring{L}$ 50'52	
max. Earth dist.	1375 Aug 12 j 19:02	28° $\mathring{L}$ 10'21	19.34876 AU				
	1375 Sep 11 j 16:32	0° $\mathring{M}$		conjunction	1383 Sep 21 j 19:00	6° $\mathring{L}$ 21'28	0°39'35
retrograde	1375 Nov 30 j 03:33	2° $\mathring{M}$ 38'01		minimum elong	1383 Sep 21 j 19:00	6° $\mathring{L}$ 21'28	0°39'36
opposition	1376 Feb 11 j 13:12	0° $\mathring{M}$ 35'37	0°48'05	max. Earth dist.	1383 Sep 21 j 01:02	6° $\mathring{L}$ 18'38	19.38101 AU
min. Earth dist.	1376 Feb 12 j 11:30	0° $\mathring{M}$ 33'10	17.34124 AU	retrograde	1384 Jan 07 j 01:04	10° $\mathring{L}$ 42'44	

opposition	1384 Mar 20 j 20:17	8° <del>4</del> 40'55	0°43'15	min. Earth dist.	1392 Apr 28 j 04:37	15° <del>1</del> 52'59	17.76791 AU
min. Earth dist.	1384 Mar 21 j 12:04	8° <del>4</del> 39'13	17.39599 AU		1392 May 20 j 00:36	15° <del>1</del> 52'59	
direct	1384 Jun 05 j 15:28	6° <del>4</del> 35'00		direct	1392 Jul 14 j 07:56	13° <del>1</del> 49'56	
					1392 Sep 05 j 04:32	15° <del>1</del> 52'59	
conjunction	1384 Sep 25 j 19:14	11° <del>4</del> 04'56	0°37'55				
minimum elong	1384 Sep 25 j 19:14	11° <del>4</del> 04'56	0°37'55	conjunction	1392 Nov 01 j 19:12	18° <del>1</del> 10'56	0°17'03
max. Earth dist.	1384 Sep 25 j 01:50	11° <del>4</del> 02'12	19.41195 AU	minimum elong	1392 Nov 01 j 19:12	18° <del>1</del> 10'56	0°17'02
retrograde	1385 Jan 11 j 00:09	15° <del>4</del> 25'42		max. Earth dist.	1392 Nov 01 j 15:31	18° <del>1</del> 10'23	19.79683 AU
opposition	1385 Mar 25 j 21:32	13° <del>4</del> 24'03	0°41'14	retrograde	1393 Feb 16 j 18:22	22° <del>1</del> 25'37	
min. Earth dist.	1385 Mar 26 j 11:49	13° <del>4</del> 22'31	17.42964 AU	opposition	1393 May 02 j 23:46	20° <del>1</del> 25'15	0°17'10
direct	1385 Jun 10 j 18:49	11° <del>4</del> 18'25		min. Earth dist.	1393 May 03 j 02:44	20° <del>1</del> 24'57	17.82603 AU
				direct	1393 Jul 19 j 05:27	18° <del>1</del> 22'07	
conjunction	1385 Sep 30 j 19:05	15° <del>4</del> 47'37	0°36'00				
minimum elong	1385 Sep 30 j 19:05	15° <del>4</del> 47'37	0°35'59	conjunction	1393 Nov 06 j 12:03	22° <del>1</del> 41'38	0°13'49
max. Earth dist.	1385 Sep 30 j 04:14	15° <del>4</del> 45'17	19.44815 AU	minimum elong	1393 Nov 06 j 12:03	22° <del>1</del> 41'38	0°13'49
retrograde	1386 Jan 15 j 22:00	20° <del>4</del> 07'45		behind sun begin	1393 Nov 06 j 08:29	22° <del>1</del> 41'06	
opposition	1386 Mar 30 j 22:39	18° <del>4</del> 06'21	0°38'57	behind sun end	1393 Nov 06 j 15:36	22° <del>1</del> 42'10	
min. Earth dist.	1386 Mar 31 j 11:37	18° <del>4</del> 04'57	17.46803 AU	max. Earth dist.	1393 Nov 06 j 09:58	22° <del>1</del> 41'19	19.85606 AU
direct	1386 Jun 15 j 21:55	16° <del>4</del> 01'01		retrograde	1394 Feb 21 j 13:16	26° <del>1</del> 55'24	
				opposition	1394 May 07 j 21:47	24° <del>1</del> 55'07	0°13'32
conjunction	1386 Oct 05 j 18:10	20° <del>4</del> 29'21	0°33'50	min. Earth dist.	1394 May 07 j 21:52	24° <del>1</del> 55'06	17.88627 AU
minimum elong	1386 Oct 05 j 18:10	20° <del>4</del> 29'21	0°33'51	direct	1394 Jul 24 j 05:22	22° <del>1</del> 52'18	
max. Earth dist.	1386 Oct 05 j 04:00	20° <del>4</del> 27'08	19.48879 AU				
retrograde	1387 Jan 20 j 19:51	24° <del>4</del> 48'52		conjunction	1394 Nov 11 j 04:01	27° <del>1</del> 10'18	0°10'32
opposition	1387 Apr 04 j 23:50	22° <del>4</del> 47'39	0°36'25	minimum elong	1394 Nov 11 j 04:01	27° <del>1</del> 10'18	0°10'31
min. Earth dist.	1387 Apr 05 j 11:39	22° <del>4</del> 46'23	17.51075 AU	behind sun begin	1394 Nov 10 j 22:51	27° <del>1</del> 09'31	
direct	1387 Jun 21 j 00:36	20° <del>4</del> 42'38		behind sun end	1394 Nov 11 j 09:11	27° <del>1</del> 11'05	
				max. Earth dist.	1394 Nov 11 j 04:30	27° <del>1</del> 10'22	19.91743 AU
conjunction	1387 Oct 10 j 16:26	25° <del>4</del> 09'59	0°31'28		1394 Dec 31 j 08:00	0° <del>4</del> 23'10	
minimum elong	1387 Oct 10 j 16:26	25° <del>4</del> 09'59	0°31'27	retrograde	1395 Feb 26 j 05:35	1° <del>4</del> 23'10	
max. Earth dist.	1387 Oct 10 j 04:36	25° <del>4</del> 08'08	19.53339 AU		1395 Apr 27 j 16:04	30° <del>4</del> 18'18	
retrograde	1388 Jan 25 j 17:03	29° <del>4</del> 28'48		opposition	1395 May 12 j 19:30	29° <del>4</del> 22'59	0°09'50
opposition	1388 Apr 09 j 00:48	27° <del>4</del> 27'47	0°33'39	min. Earth dist.	1395 May 12 j 18:36	29° <del>4</del> 23'04	17.94886 AU
min. Earth dist.	1388 Apr 09 j 10:46	27° <del>4</del> 26'43	17.55692 AU	direct	1395 Jul 29 j 01:36	27° <del>4</del> 20'30	
direct	1388 Jun 25 j 03:53	25° <del>4</del> 23'07			1395 Oct 19 j 19:15	0° <del>4</del> 23'10	
conjunction	1388 Oct 14 j 13:57	29° <del>4</del> 49'22	0°28'54	conjunction	1395 Nov 15 j 18:51	1° <del>4</del> 36'58	0°07'13
minimum elong	1388 Oct 14 j 13:57	29° <del>4</del> 49'22	0°28'54	minimum elong	1395 Nov 15 j 18:52	1° <del>4</del> 36'58	0°07'13
max. Earth dist.	1388 Oct 14 j 03:09	29° <del>4</del> 47'41	19.58117 AU	behind sun begin	1395 Nov 15 j 12:49	1° <del>4</del> 36'04	
	1388 Oct 17 j 09:55	0° <del>4</del> 23'07		behind sun end	1395 Nov 16 j 00:55	1° <del>4</del> 37'52	
retrograde	1389 Jan 29 j 13:16	4° <del>4</del> 07'26		max. Earth dist.	1395 Nov 15 j 20:53	1° <del>4</del> 37'15	19.98120 AU
opposition	1389 Apr 14 j 01:24	2° <del>4</del> 06'35	0°30'41	retrograde	1396 Mar 01 j 23:00	5° <del>4</del> 48'58	
min. Earth dist.	1389 Apr 14 j 10:33	2° <del>4</del> 05'37	17.60622 AU	opposition	1396 May 16 j 16:21	3° <del>4</del> 48'53	0°06'07
direct	1389 Jun 30 j 05:00	0° <del>4</del> 02'14		min. Earth dist.	1396 May 16 j 12:23	3° <del>4</del> 49'18	18.01362 AU
				direct	1396 Aug 01 j 23:57	1° <del>4</del> 46'47	
conjunction	1389 Oct 19 j 10:42	4° <del>4</del> 27'19	0°26'08				
minimum elong	1389 Oct 19 j 10:42	4° <del>4</del> 27'19	0°26'08	conjunction	1396 Nov 19 j 09:05	6° <del>4</del> 01'45	0°03'53
max. Earth dist.	1389 Oct 19 j 01:48	4° <del>4</del> 25'56	19.63182 AU	minimum elong	1396 Nov 19 j 09:04	6° <del>4</del> 01'45	0°03'53
retrograde	1390 Feb 03 j 10:01	8° <del>4</del> 44'35		behind sun begin	1396 Nov 19 j 02:35	6° <del>4</del> 00'47	
opposition	1390 Apr 19 j 01:39	6° <del>4</del> 43'53	0°27'31	behind sun end	1396 Nov 19 j 15:34	6° <del>4</del> 02'43	
min. Earth dist.	1390 Apr 19 j 08:38	6° <del>4</del> 43'09	17.65791 AU	max. Earth dist.	1396 Nov 19 j 13:49	6° <del>4</del> 02'26	20.04686 AU
direct	1390 Jul 05 j 07:33	4° <del>4</del> 39'52		retrograde	1397 Mar 06 j 14:07	10° <del>4</del> 12'52	
				opposition	1397 May 21 j 12:33	8° <del>4</del> 12'56	0°02'23
conjunction	1390 Oct 24 j 06:29	9° <del>4</del> 03'39	0°23'14	min. Earth dist.	1397 May 21 j 07:43	8° <del>4</del> 13'26	18.08012 AU
minimum elong	1390 Oct 24 j 06:29	9° <del>4</del> 03'39	0°23'14	direct	1397 Aug 06 j 18:58	6° <del>4</del> 11'14	
max. Earth dist.	1390 Oct 23 j 23:03	9° <del>4</del> 02'30	19.68466 AU				
retrograde	1391 Feb 08 j 04:47	13° <del>4</del> 20'06		conjunction	1397 Nov 23 j 22:19	10° <del>4</del> 24'41	0°00'29
opposition	1391 Apr 24 j 01:38	11° <del>4</del> 19'32	0°24'11	minimum elong	1397 Nov 23 j 22:20	10° <del>4</del> 24'42	0°00'29
min. Earth dist.	1391 Apr 24 j 07:54	11° <del>4</del> 18'53	17.71188 AU	behind sun begin	1397 Nov 23 j 15:49	10° <del>4</del> 23'43	
direct	1391 Jul 10 j 06:40	9° <del>4</del> 15'49		behind sun end	1397 Nov 24 j 04:52	10° <del>4</del> 25'40	
				max. Earth dist.	1397 Nov 24 j 04:12	10° <del>4</del> 25'33	20.11407 AU
conjunction	1391 Oct 29 j 01:22	13° <del>4</del> 38'15	0°20'12	desc. node	1398 Jan 13 j 23:00	13° <del>4</del> 14'53	
minimum elong	1391 Oct 29 j 01:22	13° <del>4</del> 38'15	0°20'12	retrograde	1398 Mar 11 j 06:20	14° <del>4</del> 34'59	
max. Earth dist.	1391 Oct 28 j 19:39	13° <del>4</del> 37'22	19.73977 AU	opposition	1398 May 26 j 08:09	12° <del>4</del> 35'13	0°-1'-19
	1391 Nov 20 j 07:51	15° <del>4</del> 33'49		min. Earth dist.	1398 May 26 j 00:29	12° <del>4</del> 36'00	18.14775 AU
retrograde	1392 Feb 13 j 01:04	17° <del>4</del> 53'49		direct	1398 Aug 11 j 15:02	10° <del>4</del> 33'56	
opposition	1392 Apr 28 j 00:55	15° <del>4</del> 53'22	0°20'44				

conjunction	1398 Nov 28 j 10:49	14°♂45'55	0°-2'-55	direct	1405 Sep 11 j 06:06	10°♂26'37	
minimum elong	1398 Nov 28 j 10:49	14°♂45'55	0°02'56				
behind sun begin	1398 Nov 28 j 04:18	14°♂44'57		conjunction	1405 Dec 27 j 07:34	14°♂28'58	0°-24'-17
behind sun end	1398 Nov 28 j 17:21	14°♂46'52		minimum elong	1405 Dec 27 j 07:33	14°♂28'58	0°24'17
max. Earth dist.	1398 Nov 28 j 19:26	14°♂47'12	20.18193 AU	max. Earth dist.	1405 Dec 28 j 00:04	14°♂31'25	20.62030 AU
retrograde	1399 Mar 15 j 20:25	18°♂55'24		retrograde	1406 Apr 14 j 13:51	18°♂33'34	
opposition	1399 May 31 j 03:19	16°♂55'47	0°-5'00	opposition	1406 Jun 30 j 22:16	16°♂34'38	0°-28'-19
min. Earth dist.	1399 May 30 j 18:52	16°♂56'39	18.21573 AU	min. Earth dist.	1406 Jun 30 j 04:47	16°♂36'23	18.64677 AU
direct	1399 Aug 16 j 08:59	14°♂54'58		direct	1406 Sep 15 j 18:26	14°♂36'10	
conjunction	1399 Dec 02 j 22:32	19°♂05'27	0°-6'-13	conjunction	1406 Dec 31 j 14:51	18°♂37'18	0°-26'-52
minimum elong	1399 Dec 02 j 22:32	19°♂05'27	0°06'14	minimum elong	1406 Dec 31 j 14:51	18°♂37'18	0°26'53
behind sun begin	1399 Dec 02 j 16:20	19°♂04'32		max. Earth dist.	1407 Jan 01 j 09:40	18°♂40'04	20.67243 AU
behind sun end	1399 Dec 03 j 04:45	19°♂06'22		retrograde	1407 Apr 18 j 23:13	22°♂41'18	
max. Earth dist.	1399 Dec 03 j 07:54	19°♂06'51	20.24988 AU	opposition	1407 Jul 05 j 12:00	20°♂42'22	0°-31'-6
retrograde	1400 Mar 19 j 11:25	23°♂14'10		min. Earth dist.	1407 Jul 04 j 17:40	20°♂44'12	18.69764 AU
opposition	1400 Jun 03 j 21:36	21°♂14'43	0°-8'-38	direct	1407 Sep 20 j 06:40	18°♂44'08	
min. Earth dist.	1400 Jun 03 j 10:43	21°♂15'49	18.28346 AU	conjunction	1408 Jan 04 j 21:34	22°♂44'06	0°-29'-18
direct	1400 Aug 20 j 02:42	19°♂14'17		minimum elong	1408 Jan 04 j 21:34	22°♂44'06	0°29'18
conjunction	1400 Dec 06 j 09:41	23°♂23'21	0°-9'-26	max. Earth dist.	1408 Jan 05 j 16:28	22°♂46'53	20.72210 AU
minimum elong	1400 Dec 06 j 09:41	23°♂23'21	0°09'27	retrograde	1408 Apr 22 j 09:52	26°♂47'35	
behind sun begin	1400 Dec 06 j 04:11	23°♂22'33		min. Earth dist.	1408 Jul 08 j 05:22	24°♂50'35	18.74629 AU
behind sun end	1400 Dec 06 j 15:11	23°♂24'10		opposition	1408 Jul 09 j 00:51	24°♂48'38	0°-33'-42
max. Earth dist.	1400 Dec 06 j 21:31	23°♂25'08	20.31704 AU	direct	1408 Sep 23 j 16:30	22°♂50'38	
retrograde	1401 Mar 24 j 00:33	27°♂31'19		conjunction	1409 Jan 08 j 03:59	26°♂49'32	0°-31'-34
opposition	1401 Jun 08 j 15:25	25°♂32'01	0°-12'-11	minimum elong	1409 Jan 08 j 03:59	26°♂49'32	0°31'35
min. Earth dist.	1401 Jun 08 j 03:56	25°♂33'11	18.34999 AU	max. Earth dist.	1409 Jan 09 j 01:03	26°♂52'37	20.76950 AU
direct	1401 Aug 24 j 19:13	23°♂32'01			1409 Mar 11 j 07:45	0°≈	
conjunction	1401 Dec 10 j 20:01	27°♂39'39	0°-12'-36	retrograde	1409 Apr 26 j 18:55	0°≈52'31	
minimum elong	1401 Dec 10 j 20:01	27°♂39'40	0°12'38		1409 Jun 14 j 04:55	30°♂	
behind sun begin	1401 Dec 10 j 15:45	27°♂39'02		opposition	1409 Jul 13 j 13:09	28°♂53'36	0°-36'-6
behind sun end	1401 Dec 11 j 00:17	27°♂40'17		min. Earth dist.	1409 Jul 12 j 16:43	28°♂55'38	18.79255 AU
max. Earth dist.	1401 Dec 11 j 08:11	27°♂41'29	20.38276 AU	direct	1409 Sep 28 j 03:33	26°♂55'50	
	1402 Jan 21 j 03:45	0°♂			1409 Dec 27 j 23:38	0°≈	
retrograde	1402 Mar 28 j 14:30	1°♂46'54		conjunction	1410 Jan 12 j 09:43	0°≈53'44	0°-33'-39
	1402 Jun 08 j 07:08	30°♂		minimum elong	1410 Jan 12 j 09:43	0°≈53'44	0°33'40
opposition	1402 Jun 13 j 08:30	29°♂47'44	0°-15'-40	max. Earth dist.	1410 Jan 13 j 06:44	0°≈56'48	20.81462 AU
min. Earth dist.	1402 Jun 12 j 19:01	29°♂49'06	18.41479 AU	retrograde	1410 May 01 j 05:02	4°≈56'19	
direct	1402 Aug 29 j 11:10	27°♂48'06		min. Earth dist.	1410 Jul 17 j 03:34	2°≈59'33	18.83659 AU
	1402 Nov 12 j 04:16	0°♂		opposition	1410 Jul 18 j 00:57	2°≈57'25	0°-38'-19
conjunction	1402 Dec 15 j 05:55	1°♂54'23	0°-15'-41	direct	1410 Oct 02 j 11:32	0°≈59'52	
minimum elong	1402 Dec 15 j 05:55	1°♂54'23	0°15'42	conjunction	1411 Jan 16 j 15:24	4°≈56'52	0°-35'-34
behind sun begin	1402 Dec 15 j 04:08	1°♂54'07		minimum elong	1411 Jan 16 j 15:24	4°≈56'52	0°35'35
behind sun end	1402 Dec 15 j 07:41	1°♂54'38		max. Earth dist.	1411 Jan 17 j 14:27	5°≈00'13	20.85732 AU
max. Earth dist.	1402 Dec 15 j 20:20	1°♂56'32	20.44635 AU	retrograde	1411 May 05 j 13:54	8°≈59'06	
retrograde	1403 Apr 02 j 02:28	6°♂00'55		opposition	1411 Jul 22 j 12:06	7°≈00'13	0°-40'-19
min. Earth dist.	1403 Jun 17 j 11:01	4°♂03'17	18.47717 AU	min. Earth dist.	1411 Jul 21 j 13:52	7°≈02'27	18.87794 AU
opposition	1403 Jun 18 j 01:04	4°♂01'52	0°-19'-2	direct	1411 Oct 06 j 21:25	5°≈02'56	
direct	1403 Sep 03 j 02:17	2°♂02'35		conjunction	1412 Jan 20 j 20:39	8°≈59'06	0°-37'-18
conjunction	1403 Dec 19 j 15:00	6°♂07'31	0°-18'-40	minimum elong	1412 Jan 20 j 20:39	8°≈59'06	0°37'20
minimum elong	1403 Dec 19 j 15:00	6°♂07'31	0°18'41	max. Earth dist.	1412 Jan 21 j 19:20	9°≈02'24	20.89724 AU
max. Earth dist.	1403 Dec 20 j 05:28	6°♂09'40	20.50737 AU	retrograde	1412 May 08 j 23:58	13°≈01'02	
retrograde	1404 Apr 05 j 15:36	10°♂13'23		opposition	1412 Jul 25 j 22:48	11°≈02'12	0°-42'-8
opposition	1404 Jun 21 j 16:52	8°♂14'24	0°-22'-16	min. Earth dist.	1412 Jul 25 j 00:10	11°≈04'28	18.91637 AU
min. Earth dist.	1404 Jun 21 j 01:15	8°♂15'58	18.53677 AU	direct	1412 Oct 10 j 04:34	9°≈05'08	
direct	1404 Sep 06 j 16:32	6°♂15'25		conjunction	1413 Jan 24 j 01:54	13°≈00'33	0°-38'-51
conjunction	1404 Dec 22 j 23:41	10°♂19'03	0°-21'-32	minimum elong	1413 Jan 24 j 01:53	13°≈00'33	0°38'51
minimum elong	1404 Dec 22 j 23:41	10°♂19'03	0°21'34	max. Earth dist.	1413 Jan 25 j 02:14	13°≈04'05	20.93387 AU
max. Earth dist.	1404 Dec 23 j 16:13	10°♂21'30	20.56533 AU		1413 Feb 28 j 22:41	15°≈	
retrograde	1405 Apr 10 j 01:54	14°♂24'15		retrograde	1413 May 13 j 08:29	17°≈02'15	
opposition	1405 Jun 26 j 07:50	12°♂25'19	0°-25'-23	min. Earth dist.	1413 Jul 29 j 09:40	15°≈05'46	18.95115 AU
min. Earth dist.	1405 Jun 25 j 15:42	12°♂26'57	18.59318 AU				

opposition	1413 Jul 30 j 08:55	15° <del>00</del> '03"27	0°-43'-43	retrograde	1421 Jun 15 j 04:50	18° <del>00</del> '55"55	
	1413 Jul 31 j 19:27	15° <del>00</del> ' <del>00</del> "		min. Earth dist.	1421 Aug 31 j 08:08	16° <del>00</del> '58"43	19.05699 AU
direct	1413 Oct 14 j 13:09	13° <del>00</del> '06"37		opposition	1421 Sep 01 j 05:26	16° <del>00</del> '56"35	0°-48'-21
	1413 Dec 22 j 15:36	15° <del>00</del> '		direct	1421 Nov 15 j 16:34	15° <del>00</del> '00"12	
conjunction	1414 Jan 28 j 06:53	17° <del>00</del> '01"22	0°-40'-12	conjunction	1422 Mar 01 j 00:07	18° <del>00</del> '52"25	0°-43'-36
minimum elong	1414 Jan 28 j 06:53	17° <del>00</del> '01"22	0°40'14	minimum elong	1422 Mar 01 j 00:07	18° <del>00</del> '52"25	0°43'36
max. Earth dist.	1414 Jan 29 j 06:31	17° <del>00</del> '04"47	20.96677 AU	max. Earth dist.	1422 Mar 01 j 21:57	18° <del>00</del> '55"33	21.05323 AU
retrograde	1414 May 17 j 18:21	21° <del>00</del> '02"53		retrograde	1422 Jun 19 j 12:27	22° <del>00</del> '54"03	
opposition	1414 Aug 03 j 18:50	19° <del>00</del> '04"06	0°-45'-6	opposition	1422 Sep 05 j 12:44	20° <del>00</del> '54"35	0°-47'-54
min. Earth dist.	1414 Aug 02 j 19:39	19° <del>00</del> '06"25	18.98209 AU	min. Earth dist.	1422 Sep 04 j 16:31	20° <del>00</del> '56"37	19.04943 AU
direct	1414 Oct 18 j 19:51	17° <del>00</del> '07"28		direct	1422 Nov 19 j 20:29	18° <del>00</del> '58"09	
conjunction	1415 Feb 01 j 11:56	21° <del>00</del> '01"38	0°-41'-21	conjunction	1423 Mar 05 j 05:55	22° <del>00</del> '50"28	0°-43'-4
minimum elong	1415 Feb 01 j 11:56	21° <del>00</del> '01"38	0°41'22	minimum elong	1423 Mar 05 j 05:55	22° <del>00</del> '50"28	0°43'05
max. Earth dist.	1415 Feb 02 j 12:52	21° <del>00</del> '05"14	20.99543 AU	max. Earth dist.	1423 Mar 06 j 04:24	22° <del>00</del> '53"41	21.04386 AU
retrograde	1415 May 22 j 02:48	25° <del>00</del> '03"00		retrograde	1423 Jun 23 j 21:09	26° <del>00</del> '52"21	
min. Earth dist.	1415 Aug 07 j 04:45	23° <del>00</del> '06"35	19.00836 AU	opposition	1423 Sep 09 j 19:45	24° <del>00</del> '52"47	0°-47'-12
opposition	1415 Aug 08 j 04:16	23° <del>00</del> '04"14	0°-46'-16	min. Earth dist.	1423 Sep 08 j 23:21	24° <del>00</del> '54"51	19.03819 AU
direct	1415 Oct 23 j 03:29	21° <del>00</del> '07"46		direct	1423 Nov 24 j 02:55	22° <del>00</del> '56"18	
conjunction	1416 Feb 05 j 16:58	25° <del>00</del> '01"25	0°-42'-18	conjunction	1424 Mar 08 j 11:56	26° <del>00</del> '48"48	0°-42'-20
minimum elong	1416 Feb 05 j 16:58	25° <del>00</del> '01"25	0°42'20	minimum elong	1424 Mar 08 j 11:56	26° <del>00</del> '48"48	0°42'21
max. Earth dist.	1416 Feb 06 j 16:42	25° <del>00</del> '04"51	21.01921 AU	max. Earth dist.	1424 Mar 09 j 08:44	26° <del>00</del> '51"47	21.03090 AU
retrograde	1416 May 25 j 11:54	29° <del>00</del> '02"42			1424 May 11 j 16:04	0° <del>00</del> '	
opposition	1416 Aug 11 j 13:16	27° <del>00</del> '03"55	0°-47'-11	retrograde	1424 Jun 27 j 05:35	0° <del>00</del> '51"02	
min. Earth dist.	1416 Aug 10 j 14:25	27° <del>00</del> '06"11	19.02962 AU		1424 Aug 13 j 22:09	30° <del>00</del> ' <del>00</del> "	
direct	1416 Oct 26 j 09:43	25° <del>00</del> '07"33		min. Earth dist.	1424 Sep 12 j 07:38	28° <del>00</del> '53"18	19.02353 AU
conjunction	1417 Feb 08 j 22:10	29° <del>00</del> '00"47	0°-43'-3	opposition	1424 Sep 13 j 02:41	28° <del>00</del> '51"22	0°-46'-17
minimum elong	1417 Feb 08 j 22:10	29° <del>00</del> '00"47	0°43'04	direct	1424 Nov 27 j 06:33	26° <del>00</del> '54"49	
max. Earth dist.	1417 Feb 09 j 22:44	29° <del>00</del> '04"19	21.03769 AU		1425 Feb 26 j 19:08	0° <del>00</del> '	
	1417 Feb 26 j 05:42	0° <del>00</del> '		conjunction	1425 Mar 12 j 18:27	0° <del>00</del> '47"38	0°-41'-25
retrograde	1417 May 29 j 20:17	3° <del>00</del> ' <del>02</del> "00		minimum elong	1425 Mar 12 j 18:27	0° <del>00</del> '47"38	0°41'25
opposition	1417 Aug 15 j 21:58	1° <del>00</del> ' <del>03</del> "09	0°-47'-54	max. Earth dist.	1425 Mar 13 j 15:42	0° <del>00</del> '50"40	21.01451 AU
min. Earth dist.	1417 Aug 14 j 22:59	1° <del>00</del> ' <del>05</del> "27	19.04528 AU	retrograde	1425 Jul 01 j 14:22	4° <del>00</del> '50"14	
	1417 Sep 12 j 17:45	30° <del>00</del> ' <del>00</del> "		opposition	1425 Sep 17 j 09:38	2° <del>00</del> '50"31	0°-45'-9
direct	1417 Oct 30 j 16:47	29° <del>00</del> '06"52		min. Earth dist.	1425 Sep 16 j 14:29	2° <del>00</del> '52"27	19.00529 AU
	1417 Dec 15 j 20:20	0° <del>00</del> '		direct	1425 Dec 01 j 12:42	0° <del>00</del> '53"55	
conjunction	1418 Feb 13 j 03:04	2° <del>00</del> '59"43	0°-43'-35	conjunction	1426 Mar 17 j 01:09	4° <del>00</del> '47"06	0°-40'-17
minimum elong	1418 Feb 13 j 03:04	2° <del>00</del> '59"43	0°43'36	minimum elong	1426 Mar 17 j 01:09	4° <del>00</del> '47"06	0°40'18
max. Earth dist.	1418 Feb 14 j 02:15	3° <del>00</del> ' <del>03</del> "03	21.05064 AU	max. Earth dist.	1426 Mar 17 j 20:34	4° <del>00</del> '49"52	20.99455 AU
retrograde	1418 Jun 03 j 04:23	7° <del>00</del> ' <del>00</del> "56		retrograde	1426 Jul 05 j 23:40	8° <del>00</del> '50"11	
min. Earth dist.	1418 Aug 19 j 08:24	5° <del>00</del> ' <del>04</del> "12	19.05554 AU	opposition	1426 Sep 21 j 16:47	6° <del>00</del> '50"23	0°-43'-47
opposition	1418 Aug 20 j 06:29	5° <del>00</del> ' <del>01</del> "59	0°-48'-22	min. Earth dist.	1426 Sep 20 j 23:16	6° <del>00</del> '52"09	18.98348 AU
direct	1418 Nov 03 j 22:36	3° <del>00</del> ' <del>05</del> "43		direct	1426 Dec 05 j 16:49	4° <del>00</del> '53"43	
conjunction	1419 Feb 17 j 08:19	6° <del>00</del> '58"17	0°-43'-55	conjunction	1427 Mar 21 j 08:45	8° <del>00</del> '47"24	0°-38'-57
minimum elong	1419 Feb 17 j 08:19	6° <del>00</del> '58"17	0°43'56	minimum elong	1427 Mar 21 j 08:45	8° <del>00</del> '47"24	0°38'57
max. Earth dist.	1419 Feb 18 j 08:15	7° <del>00</del> ' <del>01</del> "43	21.05823 AU	max. Earth dist.	1427 Mar 22 j 04:17	8° <del>00</del> '50"11	20.97086 AU
retrograde	1419 Jun 07 j 12:55	10° <del>00</del> '59"30		retrograde	1427 Jul 10 j 09:01	12° <del>00</del> '50"58	
opposition	1419 Aug 24 j 14:22	9° <del>00</del> ' <del>00</del> "26	0°-48'-36	opposition	1427 Sep 25 j 23:43	10° <del>00</del> '51"07	0°-42'-13
min. Earth dist.	1419 Aug 23 j 16:13	9° <del>00</del> ' <del>02</del> "39	19.06052 AU	min. Earth dist.	1427 Sep 25 j 06:32	10° <del>00</del> '52"52	18.95769 AU
direct	1419 Nov 08 j 05:16	7° <del>00</del> ' <del>04</del> "08		direct	1427 Dec 09 j 22:51	8° <del>00</del> '54"22	
conjunction	1420 Feb 21 j 13:25	10° <del>00</del> '56"30	0°-44'-1	conjunction	1428 Mar 24 j 16:48	12° <del>00</del> '48"37	0°-37'-26
minimum elong	1420 Feb 21 j 13:25	10° <del>00</del> '56"30	0°44'02	minimum elong	1428 Mar 24 j 16:48	12° <del>00</del> '48"37	0°37'27
max. Earth dist.	1420 Feb 22 j 11:54	10° <del>00</del> '59"43	21.06085 AU	max. Earth dist.	1428 Mar 25 j 10:03	12° <del>00</del> '51"05	20.94301 AU
retrograde	1420 Jun 10 j 20:16	14° <del>00</del> '57"48		retrograde	1428 Jul 13 j 18:38	16° <del>00</del> '52"45	
opposition	1420 Aug 27 j 22:06	12° <del>00</del> '58"35	0°-48'-36	opposition	1428 Sep 29 j 07:03	14° <del>00</del> '52"49	0°-40'-26
min. Earth dist.	1420 Aug 27 j 01:00	13° <del>00</del> ' <del>00</del> "42	19.06090 AU	min. Earth dist.	1428 Sep 28 j 16:00	14° <del>00</del> '54"21	18.92766 AU
direct	1420 Nov 11 j 10:04	11° <del>00</del> ' <del>02</del> "15		direct	1428 Dec 13 j 03:39	12° <del>00</del> '55"57	
conjunction	1421 Feb 24 j 18:44	14° <del>00</del> '54"30	0°-43'-55	conjunction	1429 Mar 29 j 01:32	16° <del>00</del> '50"51	0°-35'-43
minimum elong	1421 Feb 24 j 18:44	14° <del>00</del> '54"30	0°43'56	minimum elong	1429 Mar 29 j 01:32	16° <del>00</del> '50"51	0°35'43
max. Earth dist.	1421 Feb 25 j 18:01	14° <del>00</del> '57"50	21.05902 AU	max. Earth dist.	1429 Mar 29 j 18:27	16° <del>00</del> '53"17	20.91070 AU

retrograde	1429 Jul 18 j 05:03	20° $\Upsilon$ 55'34		conjunction	1437 May 01 j 23:27	19° $\text{8}$ 47'44	0°-16'-2
opposition	1429 Oct 03 j 14:28	18° $\Upsilon$ 55'33	0°-38'-26	minimum elong	1437 May 01 j 23:27	19° $\text{8}$ 47'44	0°16'03
min. Earth dist.	1429 Oct 02 j 23:57	18° $\Upsilon$ 57'02	18.89290 AU	max. Earth dist.	1437 May 02 j 03:03	19° $\text{8}$ 48'14	20.50811 AU
direct	1429 Dec 17 j 10:28	16° $\Upsilon$ 58'32		retrograde	1437 Aug 21 j 04:34	23° $\text{8}$ 57'54	
				opposition	1437 Nov 05 j 10:27	21° $\text{8}$ 56'29	0°-16'-2
conjunction	1430 Apr 02 j 10:54	20° $\Upsilon$ 54'08	0°-33'-49	min. Earth dist.	1437 Nov 05 j 07:35	21° $\text{8}$ 56'47	18.47787 AU
minimum elong	1430 Apr 02 j 10:54	20° $\Upsilon$ 54'08	0°33'50	direct	1438 Jan 19 j 00:40	19° $\text{8}$ 56'57	
max. Earth dist.	1430 Apr 03 j 01:10	20° $\Upsilon$ 56'11	20.87358 AU				
retrograde	1430 Jul 22 j 14:55	24° $\Upsilon$ 59'27		conjunction	1438 May 06 j 14:33	24° $\text{8}$ 00'43	0°-12'-59
opposition	1430 Oct 07 j 22:12	22° $\Upsilon$ 59'19	0°-36'-14	minimum elong	1438 May 06 j 14:33	24° $\text{8}$ 00'43	0°13'00
min. Earth dist.	1430 Oct 07 j 10:06	23° $\Upsilon$ 00'33	18.85337 AU	behind sun begin	1438 May 06 j 10:36	24° $\text{8}$ 00'09	
direct	1430 Dec 21 j 15:54	21° $\Upsilon$ 02'04		behind sun end	1438 May 06 j 18:31	24° $\text{8}$ 01'16	
				max. Earth dist.	1438 May 06 j 15:49	24° $\text{8}$ 00'53	20.44771 AU
conjunction	1431 Apr 06 j 21:06	24° $\Upsilon$ 58'28	0°-31'-44	retrograde	1438 Aug 25 j 17:50	28° $\text{8}$ 11'42	
minimum elong	1431 Apr 06 j 21:06	24° $\Upsilon$ 58'28	0°31'45	opposition	1438 Nov 09 j 20:39	26° $\text{8}$ 10'10	0°-12'-37
max. Earth dist.	1431 Apr 07 j 10:39	25° $\Upsilon$ 00'25	20.83171 AU	min. Earth dist.	1438 Nov 09 j 20:11	26° $\text{8}$ 10'13	18.41710 AU
retrograde	1431 Jul 27 j 02:25	29° $\Upsilon$ 04'23		direct	1439 Jan 23 j 09:12	24° $\text{8}$ 10'18	
opposition	1431 Oct 12 j 06:00	27° $\Upsilon$ 04'05	0°-33'-51				
min. Earth dist.	1431 Oct 11 j 18:35	27° $\Upsilon$ 05'15	18.80904 AU	conjunction	1439 May 11 j 06:41	28° $\text{8}$ 15'25	0°-9'-52
direct	1431 Dec 25 j 23:44	25° $\Upsilon$ 06'35		minimum elong	1439 May 11 j 06:41	28° $\text{8}$ 15'25	0°09'53
				behind sun begin	1439 May 11 j 01:14	28° $\text{8}$ 14'39	
conjunction	1432 Apr 10 j 07:44	29° $\Upsilon$ 03'49	0°-29'-29	behind sun end	1439 May 11 j 12:07	28° $\text{8}$ 16'12	
minimum elong	1432 Apr 10 j 07:44	29° $\Upsilon$ 03'49	0°29'29	max. Earth dist.	1439 May 11 j 06:51	28° $\text{8}$ 15'27	20.38666 AU
max. Earth dist.	1432 Apr 10 j 18:31	29° $\Upsilon$ 05'22	20.78522 AU		1439 Jun 10 j 21:17	0° $\text{II}$	
	1432 Apr 26 j 17:12	0° $\text{8}$		retrograde	1439 Aug 30 j 10:32	2° $\text{II}$ 27'16	
retrograde	1432 Jul 30 j 12:33	3° $\text{8}$ 10'22		opposition	1439 Nov 14 j 07:18	0° $\text{II}$ 25'38	0°-9'-6
opposition	1432 Oct 15 j 14:02	1° $\text{8}$ 09'53	0°-31'-16	min. Earth dist.	1439 Nov 14 j 07:18	0° $\text{II}$ 25'38	18.35563 AU
min. Earth dist.	1432 Oct 15 j 05:07	1° $\text{8}$ 10'48	18.76051 AU		1439 Nov 24 j 11:50	30° $\text{R}$ $\text{8}$	
	1432 Nov 14 j 18:52	30° $\text{R}$ $\Upsilon$		direct	1440 Jan 27 j 21:06	28° $\text{8}$ 25'28	
direct	1432 Dec 29 j 05:54	29° $\Upsilon$ 12'04			1440 Mar 29 j 18:11	0° $\text{II}$	
	1433 Feb 10 j 15:11	0° $\text{8}$					
conjunction	1433 Apr 14 j 19:08	3° $\text{8}$ 10'12	0°-27'-4	conjunction	1440 May 14 j 23:32	2° $\text{II}$ 32'00	0°-6'-40
minimum elong	1433 Apr 14 j 19:08	3° $\text{8}$ 10'12	0°27'05	minimum elong	1440 May 14 j 23:32	2° $\text{II}$ 32'00	0°06'41
max. Earth dist.	1433 Apr 15 j 05:15	3° $\text{8}$ 11'39	20.73493 AU	behind sun begin	1440 May 14 j 17:14	2° $\text{II}$ 31'06	
retrograde	1433 Aug 04 j 00:57	7° $\text{8}$ 17'24		behind sun end	1440 May 15 j 05:50	2° $\text{II}$ 32'54	
opposition	1433 Oct 19 j 22:14	5° $\text{8}$ 16'43	0°-28'-31	max. Earth dist.	1440 May 14 j 21:28	2° $\text{II}$ 31'43	20.32480 AU
min. Earth dist.	1433 Oct 19 j 13:50	5° $\text{8}$ 17'35	18.70846 AU	retrograde	1440 Sep 03 j 00:54	6° $\text{II}$ 44'43	
direct	1434 Jan 02 j 14:13	3° $\text{8}$ 18'35		opposition	1440 Nov 17 j 18:40	4° $\text{II}$ 43'02	0°-5'-30
				min. Earth dist.	1440 Nov 17 j 21:13	4° $\text{II}$ 42'45	18.29345 AU
conjunction	1434 Apr 19 j 06:58	7° $\text{8}$ 17'41	0°-24'-30	direct	1441 Jan 31 j 06:47	2° $\text{II}$ 42'33	
minimum elong	1434 Apr 19 j 06:58	7° $\text{8}$ 17'41	0°24'30				
max. Earth dist.	1434 Apr 19 j 14:33	7° $\text{8}$ 18'46	20.68142 AU	conjunction	1441 May 19 j 17:27	6° $\text{II}$ 50'33	0°-3'-24
retrograde	1434 Aug 08 j 12:08	11° $\text{8}$ 25'35		minimum elong	1441 May 19 j 17:27	6° $\text{II}$ 50'33	0°03'25
opposition	1434 Oct 24 j 06:51	9° $\text{8}$ 24'41	0°-25'-36	behind sun begin	1441 May 19 j 10:45	6° $\text{II}$ 49'35	
min. Earth dist.	1434 Oct 24 j 00:52	9° $\text{8}$ 25'19	18.65362 AU	behind sun end	1441 May 20 j 00:10	6° $\text{II}$ 51'31	
direct	1435 Jan 06 j 21:19	7° $\text{8}$ 26'11		max. Earth dist.	1441 May 19 j 13:54	6° $\text{II}$ 50'04	20.26232 AU
				retrograde	1441 Sep 07 j 19:15	11° $\text{II}$ 04'09	
conjunction	1435 Apr 23 j 19:50	11° $\text{8}$ 26'21	0°-21'-48	opposition	1441 Nov 22 j 06:29	9° $\text{II}$ 02'25	0°-1'-50
minimum elong	1435 Apr 23 j 19:50	11° $\text{8}$ 26'21	0°21'49	min. Earth dist.	1441 Nov 22 j 09:46	9° $\text{II}$ 02'04	18.23049 AU
max. Earth dist.	1435 Apr 24 j 02:39	11° $\text{8}$ 27'20	20.62544 AU	direct	1442 Feb 04 j 20:11	7° $\text{II}$ 01'36	
	1435 Jul 06 j 08:33	15° $\text{8}$					
retrograde	1435 Aug 13 j 01:28	15° $\text{8}$ 34'58		conjunction	1442 May 24 j 12:20	11° $\text{II}$ 11'08	0°00'-1
	1435 Sep 20 j 06:03	15° $\text{R}$ $\text{8}$		minimum elong	1442 May 24 j 12:20	11° $\text{II}$ 11'08	0°00'02
opposition	1435 Oct 28 j 15:30	13° $\text{8}$ 33'53	0°-22'-33	behind sun begin	1442 May 24 j 06:59	11° $\text{II}$ 10'22	
min. Earth dist.	1435 Oct 28 j 09:58	13° $\text{8}$ 34'28	18.59652 AU	behind sun end	1442 May 24 j 17:40	11° $\text{II}$ 11'53	
direct	1436 Jan 11 j 06:23	11° $\text{8}$ 35'02		max. Earth dist.	1442 May 24 j 06:27	11° $\text{II}$ 10'18	20.19876 AU
	1436 Apr 16 j 22:27	15° $\text{8}$		asc. node	1442 May 27 j 03:55	11° $\text{II}$ 20'33	
conjunction	1436 Apr 27 j 09:17	15° $\text{8}$ 36'20	0°-18'-58	retrograde	1442 Sep 12 j 11:01	15° $\text{II}$ 25'37	
minimum elong	1436 Apr 27 j 09:17	15° $\text{8}$ 36'20	0°18'59	opposition	1442 Nov 26 j 19:12	13° $\text{II}$ 23'49	0°01'51
max. Earth dist.	1436 Apr 27 j 13:38	15° $\text{8}$ 36'57	20.56744 AU	min. Earth dist.	1442 Nov 27 j 01:15	13° $\text{II}$ 23'10	18.16639 AU
retrograde	1436 Aug 16 j 13:46	19° $\text{8}$ 45'42		direct	1443 Feb 09 j 07:42	11° $\text{II}$ 22'39	
opposition	1436 Nov 01 j 00:50	17° $\text{8}$ 44'26	0°-19'-21				
min. Earth dist.	1436 Oct 31 j 21:38	17° $\text{8}$ 44'46	18.53780 AU	conjunction	1443 May 29 j 08:15	15° $\text{II}$ 33'43	0°03'24
direct	1437 Jan 14 j 14:13	15° $\text{8}$ 45'14		minimum elong	1443 May 29 j 08:14	15° $\text{II}$ 33'43	0°03'24
				behind sun begin	1443 May 29 j 01:31	15° $\text{II}$ 32'44	
				behind sun end	1443 May 29 j 14:57	15° $\text{II}$ 34'41	
				max. Earth dist.	1443 May 29 j 00:16	15° $\text{II}$ 32'33	20.13411 AU

retrograde	1443 Sep 17 j 06:15	19°II49'04		min. Earth dist.	1451 Jan 01 j 16:38	19°☾17'38	17.65938 AU
opposition	1443 Dec 01 j 08:21	17°II47'10	0°05'34	direct	1451 Mar 17 j 02:36	17°☾15'04	
min. Earth dist.	1443 Dec 01 j 15:19	17°II46'25	18.10117 AU	max. Earth dist.	1451 Jul 05 j 04:41	21°☾34'37	19.63257 AU
direct	1444 Feb 13 j 23:06	15°II45'39					
				conjunction	1451 Jul 06 j 02:11	21°☾37'54	0°28'26
conjunction	1444 Jun 02 j 05:00	19°II58'14	0°06'44	minimum elong	1451 Jul 06 j 02:11	21°☾37'54	0°28'26
minimum elong	1444 Jun 02 j 04:59	19°II58'14	0°06'45	retrograde	1451 Oct 23 j 18:46	25°☾58'57	
behind sun begin	1444 Jun 01 j 22:40	19°II57'19		opposition	1452 Jan 05 j 18:06	23°☾56'11	0°33'06
behind sun end	1444 Jun 02 j 11:17	19°II59'09		min. Earth dist.	1452 Jan 06 j 11:44	23°☾54'15	17.60714 AU
max. Earth dist.	1444 Jun 01 j 18:54	19°II56'45	20.06831 AU	direct	1452 Mar 20 j 23:33	21°☾51'25	
retrograde	1444 Sep 20 j 22:47	24°II14'25		max. Earth dist.	1452 Jul 09 j 07:10	26°☾12'20	19.58244 AU
opposition	1444 Dec 04 j 22:26	22°II12'25	0°09'17				
min. Earth dist.	1444 Dec 05 j 07:58	22°II11'23	18.03506 AU	conjunction	1452 Jul 10 j 04:21	26°☾15'35	0°31'01
direct	1445 Feb 17 j 12:44	20°II10'29		minimum elong	1452 Jul 10 j 04:21	26°☾15'35	0°31'00
					1452 Sep 20 j 14:09	0°♂	
conjunction	1445 Jun 07 j 02:22	24°II24'36	0°10'04	retrograde	1452 Oct 27 j 17:05	0°♂37'10	
minimum elong	1445 Jun 07 j 02:21	24°II24'36	0°10'03		1452 Dec 04 j 09:12	30°R☾	
behind sun begin	1445 Jun 06 j 20:57	24°II23'49		opposition	1453 Jan 09 j 13:25	28°☾34'25	0°35'53
behind sun end	1445 Jun 07 j 07:45	24°II25'23		min. Earth dist.	1453 Jan 10 j 07:44	28°☾32'25	17.55928 AU
max. Earth dist.	1445 Jun 06 j 14:03	24°II22'46	20.00207 AU	direct	1453 Mar 25 j 20:10	26°☾29'23	
retrograde	1445 Sep 25 j 18:35	28°II41'35			1453 Jun 30 j 08:45	0°♂	
opposition	1445 Dec 09 j 12:59	26°II39'27	0°12'59	max. Earth dist.	1453 Jul 14 j 07:43	0°♂51'15	19.53689 AU
min. Earth dist.	1445 Dec 09 j 23:23	26°II38'20	17.96874 AU				
direct	1446 Feb 22 j 06:05	24°II37'07		conjunction	1453 Jul 15 j 06:49	0°♂54'49	0°33'25
max. Earth dist.	1446 Jun 11 j 10:55	28°II50'41	19.93576 AU	minimum elong	1453 Jul 15 j 06:49	0°♂54'49	0°33'25
				retrograde	1453 Nov 01 j 16:23	5°♂16'54	
conjunction	1446 Jun 12 j 00:46	28°II52'45	0°13'21	opposition	1454 Jan 14 j 09:25	3°♂14'10	0°38'28
minimum elong	1446 Jun 12 j 00:46	28°II52'45	0°13'21	min. Earth dist.	1454 Jan 15 j 04:33	3°♂12'05	17.51606 AU
behind sun begin	1446 Jun 11 j 21:03	28°II52'12		direct	1454 Mar 30 j 18:16	1°♂08'54	
behind sun end	1446 Jun 12 j 04:29	28°II53'18		max. Earth dist.	1454 Jul 19 j 11:22	5°♂32'02	19.49579 AU
	1446 Jun 30 j 21:00	0°☾					
retrograde	1446 Sep 30 j 11:59	3°☾10'29		conjunction	1454 Jul 20 j 10:05	5°♂35'32	0°35'37
opposition	1446 Dec 14 j 04:11	1°☾08'13	0°16'37	minimum elong	1454 Jul 20 j 10:05	5°♂35'32	0°35'37
min. Earth dist.	1446 Dec 14 j 16:55	1°☾06'51	17.90279 AU	retrograde	1454 Nov 06 j 15:41	9°♂58'04	
	1447 Jan 11 j 02:57	30°RII		opposition	1455 Jan 19 j 06:03	7°♂55'24	0°40'48
direct	1447 Feb 26 j 22:08	29°II05'27		min. Earth dist.	1455 Jan 20 j 01:38	7°♂53'15	17.47707 AU
	1447 Apr 13 j 22:33	0°☾		direct	1455 Apr 04 j 16:44	5°♂49'56	
conjunction	1447 Jun 16 j 23:48	3°☾22'35	0°16'35	conjunction	1455 Jul 25 j 13:38	10°♂17'41	0°37'35
minimum elong	1447 Jun 16 j 23:48	3°☾22'35	0°16'34	minimum elong	1455 Jul 25 j 13:38	10°♂17'40	0°37'35
max. Earth dist.	1447 Jun 16 j 07:38	3°☾20'09	19.87040 AU	max. Earth dist.	1455 Jul 24 j 13:07	10°♂13'53	19.45888 AU
retrograde	1447 Oct 05 j 08:06	7°☾41'04		retrograde	1455 Nov 11 j 15:16	14°♂40'35	
opposition	1447 Dec 18 j 20:01	5°☾38'40	0°20'10	opposition	1456 Jan 24 j 03:33	12°♂37'58	0°42'52
min. Earth dist.	1447 Dec 19 j 09:29	5°☾37'12	17.83818 AU	min. Earth dist.	1456 Jan 25 j 00:12	12°♂35'43	17.44234 AU
direct	1448 Mar 02 j 16:51	3°☾35'27		direct	1456 Apr 08 j 16:09	10°♂32'19	
conjunction	1448 Jun 20 j 23:27	7°☾54'04	0°19'43	conjunction	1456 Jul 29 j 17:26	15°♂01'03	0°39'19
minimum elong	1448 Jun 20 j 23:27	7°☾54'04	0°19'44	minimum elong	1456 Jul 29 j 17:26	15°♂01'03	0°39'19
max. Earth dist.	1448 Jun 20 j 06:31	7°☾51'30	19.80655 AU	max. Earth dist.	1456 Jul 28 j 17:16	14°♂57'18	19.42606 AU
retrograde	1448 Oct 09 j 03:03	12°☾13'14			1456 Jul 29 j 10:39	15°♂	
opposition	1448 Dec 22 j 12:36	10°☾10'43	0°23'37	retrograde	1456 Nov 15 j 15:19	19°♂24'16	
min. Earth dist.	1448 Dec 23 j 03:48	10°☾09'04	17.77551 AU	opposition	1457 Jan 28 j 01:38	17°♂21'42	0°44'40
direct	1449 Mar 07 j 11:08	8°☾07'04		min. Earth dist.	1457 Jan 28 j 22:16	17°♂19'27	17.41145 AU
				direct	1457 Apr 13 j 17:04	15°♂15'53	
conjunction	1449 Jun 25 j 23:41	12°☾27'07	0°22'46	conjunction	1457 Aug 03 j 21:32	19°♂45'29	0°40'47
minimum elong	1449 Jun 25 j 23:41	12°☾27'07	0°22'46	minimum elong	1457 Aug 03 j 21:32	19°♂45'29	0°40'46
max. Earth dist.	1449 Jun 25 j 04:32	12°☾24'13	19.74524 AU	max. Earth dist.	1457 Aug 02 j 20:01	19°♂41'30	19.39710 AU
retrograde	1449 Oct 13 j 23:53	16°☾46'58		retrograde	1457 Nov 20 j 14:30	24°♂08'54	
opposition	1449 Dec 27 j 05:38	14°☾44'19	0°26'57	opposition	1458 Feb 02 j 00:16	22°♂06'23	0°46'09
min. Earth dist.	1449 Dec 27 j 21:29	14°☾42'36	17.71577 AU	min. Earth dist.	1458 Feb 02 j 22:07	22°♂03'59	17.38459 AU
direct	1450 Mar 12 j 07:00	12°☾40'16		direct	1458 Apr 18 j 17:35	20°♂00'24	
max. Earth dist.	1450 Jun 30 j 05:23	16°☾58'48	19.68701 AU	max. Earth dist.	1458 Aug 08 j 00:29	24°♂26'47	19.37223 AU
conjunction	1450 Jul 01 j 00:45	17°☾01'45	0°25'40	conjunction	1458 Aug 09 j 01:52	24°♂30'44	0°41'58
minimum elong	1450 Jul 01 j 00:45	17°☾01'45	0°25'40	minimum elong	1458 Aug 09 j 01:51	24°♂30'44	0°41'58
retrograde	1450 Oct 18 j 20:36	21°☾22'12		retrograde	1458 Nov 25 j 15:02	28°♂54'17	
opposition	1450 Dec 31 j 23:35	19°☾19'29	0°30'06				

opposition	1459 Feb 06 j 23:26	26°♂51'48	0°47'20	conjunction	1466 Sep 17 j 03:00	2°♂38'30	0°40'49
min. Earth dist.	1459 Feb 07 j 20:47	26°♂49'28	17.36173 AU	minimum elong	1466 Sep 17 j 03:00	2°♂38'30	0°40'49
direct	1459 Apr 23 j 20:33	24°♂45'41		retrograde	1467 Jan 02 j 12:10	7°♂00'21	
max. Earth dist.	1459 Aug 13 j 04:10	29°♂12'34	19.35147 AU	opposition	1467 Mar 17 j 04:12	4°♂58'25	0°44'45
				min. Earth dist.	1467 Mar 17 j 20:53	4°♂56'37	17.36999 AU
conjunction	1459 Aug 14 j 06:00	29°♂16'36	0°42'53	direct	1467 Jun 01 j 21:10	2°♂52'20	
minimum elong	1459 Aug 14 j 06:00	29°♂16'36	0°42'53	max. Earth dist.	1467 Sep 21 j 10:12	7°♂20'10	19.38310 AU
	1459 Aug 25 j 20:06	0°♂					
retrograde	1459 Nov 30 j 13:55	3°♂40'13		conjunction	1467 Sep 22 j 04:03	7°♂22'58	0°39'22
opposition	1460 Feb 11 j 23:10	1°♂37'45	0°48'11	minimum elong	1467 Sep 22 j 04:03	7°♂22'58	0°39'22
min. Earth dist.	1460 Feb 12 j 21:33	1°♂35'19	17.34333 AU	retrograde	1468 Jan 07 j 11:16	11°♂44'20	
	1460 Mar 25 j 16:05	30°♂♂		opposition	1468 Mar 21 j 05:37	9°♂42'35	0°42'59
direct	1460 Apr 27 j 22:19	29°♂31'30		min. Earth dist.	1468 Mar 21 j 21:34	9°♂40'52	17.39804 AU
	1460 May 30 j 20:07	0°♂		direct	1468 Jun 06 j 00:20	7°♂36'44	
max. Earth dist.	1460 Aug 17 j 08:23	3°♂58'51	19.33546 AU	max. Earth dist.	1468 Sep 25 j 10:58	12°♂03'59	19.41386 AU
conjunction	1460 Aug 18 j 10:04	4°♂02'53	0°43'29	conjunction	1468 Sep 26 j 04:27	12°♂06'44	0°37'40
minimum elong	1460 Aug 18 j 10:04	4°♂02'53	0°43'29	minimum elong	1468 Sep 26 j 04:27	12°♂06'44	0°37'40
retrograde	1460 Dec 04 j 14:25	8°♂26'27		retrograde	1469 Jan 11 j 09:44	16°♂27'33	
opposition	1461 Feb 15 j 23:03	6°♂24'01	0°48'42	opposition	1469 Mar 26 j 06:44	14°♂25'59	0°40'56
min. Earth dist.	1461 Feb 16 j 20:25	6°♂21'41	17.32971 AU	min. Earth dist.	1469 Mar 26 j 21:09	14°♂24'26	17.43127 AU
direct	1461 May 03 j 02:37	4°♂17'39		direct	1469 Jun 11 j 03:02	12°♂20'24	
conjunction	1461 Aug 23 j 13:58	8°♂49'20	0°43'47	conjunction	1469 Oct 01 j 04:25	16°♂49'40	0°35'42
minimum elong	1461 Aug 23 j 13:58	8°♂49'20	0°43'48	minimum elong	1469 Oct 01 j 04:25	16°♂49'40	0°35'42
max. Earth dist.	1461 Aug 22 j 12:48	8°♂45'24	19.32436 AU	max. Earth dist.	1469 Sep 30 j 13:26	16°♂47'19	19.44936 AU
retrograde	1461 Dec 09 j 13:02	13°♂12'47		retrograde	1470 Jan 16 j 08:15	21°♂09'52	
opposition	1462 Feb 20 j 23:28	11°♂10'23	0°48'52	opposition	1470 Mar 31 j 08:03	19°♂08'29	0°38'37
min. Earth dist.	1462 Feb 21 j 21:35	11°♂07'59	17.32128 AU	min. Earth dist.	1470 Mar 31 j 21:24	19°♂07'03	17.46876 AU
direct	1462 May 08 j 04:59	9°♂03'56		direct	1470 Jun 16 j 07:07	17°♂03'11	
conjunction	1462 Aug 28 j 17:28	13°♂35'47	0°43'47	conjunction	1470 Oct 06 j 03:28	21°♂31'33	0°33'31
minimum elong	1462 Aug 28 j 17:28	13°♂35'47	0°43'47	minimum elong	1470 Oct 06 j 03:28	21°♂31'33	0°33'30
max. Earth dist.	1462 Aug 27 j 16:27	13°♂31'51	19.31872 AU	max. Earth dist.	1470 Oct 05 j 13:00	21°♂29'18	19.48888 AU
retrograde	1462 Dec 14 j 13:41	17°♂59'02		retrograde	1471 Jan 21 j 05:07	25°♂51'06	
opposition	1463 Feb 25 j 23:59	15°♂56'40	0°48'43	opposition	1471 Apr 05 j 09:13	23°♂49'53	0°36'02
min. Earth dist.	1463 Feb 26 j 20:34	15°♂54'25	17.31846 AU	min. Earth dist.	1471 Apr 05 j 21:16	23°♂48'36	17.51018 AU
direct	1463 May 13 j 09:51	13°♂50'10		direct	1471 Jun 21 j 09:42	21°♂44'52	
conjunction	1463 Sep 02 j 20:40	18°♂22'02	0°43'29	conjunction	1471 Oct 11 j 01:56	26°♂12'14	0°31'06
minimum elong	1463 Sep 02 j 20:40	18°♂22'02	0°43'29	minimum elong	1471 Oct 11 j 01:56	26°♂12'14	0°31'07
max. Earth dist.	1463 Sep 01 j 21:15	18°♂18'22	19.31886 AU	max. Earth dist.	1471 Oct 10 j 13:51	26°♂10'21	19.53206 AU
retrograde	1463 Dec 19 j 12:28	22°♂45'02			1471 Dec 23 j 12:10	0°♂	
opposition	1464 Mar 02 j 00:57	20°♂42'43	0°48'12	retrograde	1472 Jan 26 j 02:44	0°♂31'03	
min. Earth dist.	1464 Mar 02 j 21:41	20°♂40'28	17.32174 AU		1472 Feb 29 j 15:08	30°♂♂	
direct	1464 May 17 j 12:10	18°♂36'14		opposition	1472 Apr 09 j 10:07	28°♂30'00	0°33'14
				min. Earth dist.	1472 Apr 09 j 20:35	28°♂28'53	17.55486 AU
				direct	1472 Jun 25 j 13:19	26°♂25'17	
conjunction	1464 Sep 06 j 23:07	23°♂07'58	0°42'53		1472 Oct 01 j 04:15	0°♂	
minimum elong	1464 Sep 06 j 23:07	23°♂07'58	0°42'53				
max. Earth dist.	1464 Sep 06 j 00:01	23°♂04'20	19.32538 AU	conjunction	1472 Oct 14 j 23:25	0°♂51'32	0°28'30
retrograde	1464 Dec 23 j 12:59	27°♂30'38		minimum elong	1472 Oct 14 j 23:25	0°♂51'32	0°28'30
opposition	1465 Mar 07 j 01:53	25°♂28'24	0°47'22	max. Earth dist.	1472 Oct 14 j 12:08	0°♂49'46	19.57829 AU
min. Earth dist.	1465 Mar 07 j 20:44	25°♂26'22	17.33146 AU	retrograde	1473 Jan 29 j 22:32	5°♂09'35	
direct	1465 May 22 j 15:58	23°♂21'59		opposition	1473 Apr 14 j 10:44	3°♂08'39	0°30'14
max. Earth dist.	1465 Sep 11 j 04:35	27°♂50'12	19.33833 AU	min. Earth dist.	1473 Apr 14 j 20:11	3°♂07'39	17.60254 AU
				direct	1473 Jun 30 j 14:30	1°♂04'12	
conjunction	1465 Sep 12 j 01:25	27°♂53'29	0°41'59				
minimum elong	1465 Sep 12 j 01:25	27°♂53'29	0°41'58	conjunction	1473 Oct 19 j 20:10	5°♂29'16	0°25'44
	1465 Oct 16 j 20:11	0°♂		minimum elong	1473 Oct 19 j 20:11	5°♂29'16	0°25'44
retrograde	1465 Dec 28 j 12:10	2°♂15'45		max. Earth dist.	1473 Oct 19 j 11:00	5°♂27'50	19.62734 AU
opposition	1466 Mar 12 j 03:00	0°♂13'40	0°46'13	retrograde	1474 Feb 03 j 19:11	9°♂46'30	
min. Earth dist.	1466 Mar 12 j 21:34	0°♂11'39	17.34757 AU	opposition	1474 Apr 19 j 10:52	7°♂45'42	0°27'02
	1466 Mar 17 j 09:17	30°♂♂		min. Earth dist.	1474 Apr 19 j 18:16	7°♂44'55	17.65272 AU
direct	1466 May 27 j 18:13	28°♂07'22		direct	1474 Jul 05 j 16:54	5°♂41'32	
	1466 Aug 03 j 08:52	0°♂					
max. Earth dist.	1466 Sep 16 j 06:29	2°♂35'16	19.35772 AU	conjunction	1474 Oct 24 j 15:57	10°♂05'18	0°22'48

minimum elong	1474 Oct 24 j 15:57	10°M05'18	0°22'48	direct	1481 Aug 07 j 03:05	7°♂11'46	
max. Earth dist.	1474 Oct 24 j 08:07	10°M04'05	19.67888 AU	desc. node	1481 Nov 23 j 04:34	11°♂21'13	
retrograde	1475 Feb 08 j 13:53	14°M21'41					
opposition	1475 Apr 24 j 10:45	12°M20'59	0°23'42	conjunction	1481 Nov 24 j 07:46	11°♂25'22	0°00'00
min. Earth dist.	1475 Apr 24 j 17:11	12°M20'19	17.70560 AU	minimum elong	1481 Nov 24 j 07:45	11°♂25'22	0°00'01
direct	1475 Jul 10 j 16:41	10°M17'06		behind sun begin	1481 Nov 24 j 05:00	11°♂25'00	
				behind sun end	1481 Nov 24 j 10:31	11°♂25'44	
conjunction	1475 Oct 29 j 10:39	14°M39'30	0°19'45	max. Earth dist.	1481 Nov 24 j 13:43	11°♂26'15	20.11199 AU
minimum elong	1475 Oct 29 j 10:39	14°M39'30	0°19'44	retrograde	1482 Mar 11 j 16:29	15°♂35'45	
max. Earth dist.	1475 Oct 29 j 04:54	14°M38'37	19.73311 AU	opposition	1482 May 26 j 17:05	13°♂36'03	0°-1'-50
	1475 Nov 03 j 22:35	15°M		min. Earth dist.	1482 May 26 j 09:20	13°♂36'51	18.14607 AU
retrograde	1476 Feb 13 j 09:34	18°M55'00		direct	1482 Aug 11 j 23:22	11°♂34'50	
opposition	1476 Apr 28 j 09:57	16°M54'24	0°20'14				
min. Earth dist.	1476 Apr 28 j 13:49	16°M54'00	17.76100 AU	conjunction	1482 Nov 28 j 20:26	15°♂46'58	0°-3'-24
	1476 Jun 25 j 15:37	15°R		minimum elong	1482 Nov 28 j 20:27	15°♂46'58	0°03'25
direct	1476 Jul 14 j 17:37	14°M50'49		behind sun begin	1482 Nov 28 j 13:57	15°♂46'00	
	1476 Aug 02 j 12:35	15°M		behind sun end	1482 Nov 29 j 02:57	15°♂47'56	
				max. Earth dist.	1482 Nov 29 j 04:55	15°♂48'14	20.18062 AU
conjunction	1476 Nov 02 j 04:29	19°M11'46	0°16'35	retrograde	1483 Mar 16 j 06:09	19°♂56'34	
minimum elong	1476 Nov 02 j 04:29	19°M11'46	0°16'36	opposition	1483 May 31 j 12:19	17°♂57'03	0°-5'-31
max. Earth dist.	1476 Nov 02 j 00:40	19°M11'11	19.78986 AU	min. Earth dist.	1483 May 31 j 03:57	17°♂57'54	18.21473 AU
retrograde	1477 Feb 17 j 02:47	23°M26'24		direct	1483 Aug 16 j 16:39	15°♂56'16	
opposition	1477 May 03 j 08:34	21°M25'53	0°16'39				
min. Earth dist.	1477 May 03 j 11:30	21°M25'35	17.81919 AU	conjunction	1483 Dec 03 j 08:13	20°♂06'56	0°-6'-41
direct	1477 Jul 19 j 15:35	19°M22'36		minimum elong	1483 Dec 03 j 08:13	20°♂06'56	0°06'42
				behind sun begin	1483 Dec 03 j 02:05	20°♂06'02	
conjunction	1477 Nov 06 j 21:21	23°M42'07	0°13'21	behind sun end	1483 Dec 03 j 14:21	20°♂07'50	
minimum elong	1477 Nov 06 j 21:21	23°M42'07	0°13'21	max. Earth dist.	1483 Dec 03 j 17:31	20°♂08'19	20.24907 AU
behind sun begin	1477 Nov 06 j 17:29	23°M41'32		retrograde	1484 Mar 19 j 22:12	24°♂15'45	
behind sun end	1477 Nov 07 j 01:13	23°M42'42		opposition	1484 Jun 04 j 06:43	22°♂16'23	0°-9'-9
max. Earth dist.	1477 Nov 06 j 19:28	23°M41'50	19.84951 AU	min. Earth dist.	1484 Jun 03 j 19:56	22°♂17'29	18.28275 AU
retrograde	1478 Feb 21 j 21:43	27°M55'51		direct	1484 Aug 20 j 11:38	20°♂16'02	
opposition	1478 May 08 j 06:40	25°M55'27	0°13'01				
min. Earth dist.	1478 May 08 j 06:35	25°M55'28	17.88016 AU	conjunction	1484 Dec 06 j 19:30	24°♂25'15	0°-9'-55
direct	1478 Jul 24 j 14:53	23°M52'32		minimum elong	1484 Dec 06 j 19:30	24°♂25'16	0°09'56
				behind sun begin	1484 Dec 06 j 14:09	24°♂24'28	
conjunction	1478 Nov 11 j 13:13	28°M10'34	0°10'04	behind sun end	1484 Dec 07 j 00:51	24°♂26'03	
minimum elong	1478 Nov 11 j 13:13	28°M10'34	0°10'05	max. Earth dist.	1484 Dec 07 j 07:05	24°♂27'00	20.31636 AU
behind sun begin	1478 Nov 11 j 07:53	28°M09'46		retrograde	1485 Mar 24 j 10:27	28°♂33'18	
behind sun end	1478 Nov 11 j 18:32	28°M11'21		opposition	1485 Jun 09 j 00:33	26°♂34'05	0°-12'-42
max. Earth dist.	1478 Nov 11 j 13:46	28°M10'38	19.91185 AU	min. Earth dist.	1485 Jun 08 j 13:23	26°♂35'13	18.34928 AU
	1478 Dec 12 j 02:30	0°♂		direct	1485 Aug 25 j 03:51	24°♂34'08	
retrograde	1479 Feb 26 j 13:41	2°♂23'26					
opposition	1479 May 13 j 04:20	0°♂23'11	0°09'19	conjunction	1485 Dec 11 j 06:01	28°♂41'55	0°-13'-4
min. Earth dist.	1479 May 13 j 03:12	0°♂23'18	17.94389 AU	minimum elong	1485 Dec 11 j 06:00	28°♂41'55	0°13'05
	1479 May 22 j 13:18	30°R		behind sun begin	1485 Dec 11 j 01:59	28°♂41'20	
direct	1479 Jul 29 j 11:03	28°M20'40		behind sun end	1485 Dec 11 j 10:01	28°♂42'30	
	1479 Oct 01 j 06:04	0°♂		max. Earth dist.	1485 Dec 11 j 17:59	28°♂43'42	20.38198 AU
					1486 Jan 02 j 06:00	0°♂	
conjunction	1479 Nov 16 j 04:15	2°♂37'12	0°06'45	retrograde	1486 Mar 29 j 00:56	2°♂49'13	
minimum elong	1479 Nov 16 j 04:14	2°♂37'12	0°06'45	opposition	1486 Jun 13 j 17:45	0°♂50'07	0°-16'-10
behind sun begin	1479 Nov 15 j 22:06	2°♂36'17		min. Earth dist.	1486 Jun 13 j 04:30	0°♂51'27	18.41386 AU
behind sun end	1479 Nov 16 j 10:23	2°♂38'07			1486 Jul 05 j 00:38	30°R♂	
max. Earth dist.	1479 Nov 16 j 06:27	2°♂37'31	19.97687 AU	direct	1486 Aug 29 j 20:42	28°♂50'30	
retrograde	1480 Mar 02 j 08:12	6°♂49'14			1486 Oct 21 j 19:39	0°♂	
opposition	1480 May 17 j 01:05	4°♂49'09	0°05'36				
min. Earth dist.	1480 May 16 j 20:55	4°♂49'35	18.00992 AU	conjunction	1486 Dec 15 j 15:51	2°♂56'53	0°-16'-9
direct	1480 Aug 02 j 08:26	2°♂47'02		minimum elong	1486 Dec 15 j 15:51	2°♂56'53	0°16'09
				behind sun begin	1486 Dec 15 j 15:02	2°♂56'46	
conjunction	1480 Nov 19 j 18:28	7°♂02'07	0°03'25	behind sun end	1486 Dec 15 j 16:40	2°♂57'00	
minimum elong	1480 Nov 19 j 18:29	7°♂02'07	0°03'25	max. Earth dist.	1486 Dec 16 j 06:01	2°♂59'00	20.44523 AU
behind sun begin	1480 Nov 19 j 11:58	7°♂01'09		retrograde	1487 Apr 02 j 12:18	7°♂03'27	
behind sun end	1480 Nov 20 j 01:00	7°♂03'06		opposition	1487 Jun 18 j 10:23	5°♂04'25	0°-19'-31
max. Earth dist.	1480 Nov 19 j 23:11	7°♂02'48	20.04378 AU	min. Earth dist.	1487 Jun 17 j 20:44	5°♂05'48	18.47582 AU
retrograde	1481 Mar 06 j 22:58	11°♂13'19		direct	1487 Sep 03 j 11:47	3°♂05'08	
opposition	1481 May 21 j 21:27	9°♂13'26	0°01'52				
min. Earth dist.	1481 May 21 j 16:30	9°♂13'56	18.07756 AU	conjunction	1487 Dec 20 j 01:01	7°♂10'07	0°-19'-7



minimum elong	1487 Dec 20 j 01:01	7°☾10'07	0°19'08	minimum elong	1496 Jan 21 j 06:23	10°≈00'32	0°37'33
max. Earth dist.	1487 Dec 20 j 15:18	7°☾12'14	20.50586 AU	max. Earth dist.	1496 Jan 22 j 04:59	10°≈03'49	20.90248 AU
retrograde	1488 Apr 06 j 00:51	11°☾15'58		retrograde	1496 May 09 j 09:08	14°≈02'24	
min. Earth dist.	1488 Jun 21 j 10:35	9°☾18'31	18.53512 AU	min. Earth dist.	1496 Jul 25 j 09:12	12°≈05'53	18.92174 AU
opposition	1488 Jun 22 j 01:58	9°☾16'58	0°-22'-45	opposition	1496 Jul 26 j 07:49	12°≈03'38	0°-42'-23
direct	1488 Sep 07 j 02:11	7°☾17'57		direct	1496 Oct 10 j 14:22	10°≈06'37	
conjunction	1488 Dec 23 j 09:36	11°☾21'36	0°-21'-58	conjunction	1497 Jan 24 j 11:44	14°≈02'04	0°-39'-4
minimum elong	1488 Dec 23 j 09:36	11°☾21'36	0°21'58	minimum elong	1497 Jan 24 j 11:44	14°≈02'04	0°39'06
max. Earth dist.	1488 Dec 24 j 02:01	11°☾24'02	20.56368 AU	max. Earth dist.	1497 Jan 25 j 11:54	14°≈05'34	20.93931 AU
retrograde	1489 Apr 10 j 11:23	15°☾26'44			1497 Feb 10 j 06:47	15°≈	
opposition	1489 Jun 26 j 17:02	13°☾27'46	0°-25'-50	retrograde	1497 May 13 j 17:54	18°≈03'42	
min. Earth dist.	1489 Jun 26 j 01:09	13°☾29'22	18.59161 AU	opposition	1497 Jul 30 j 18:09	16°≈04'59	0°-43'-57
direct	1489 Sep 11 j 15:44	11°☾29'00		min. Earth dist.	1497 Jul 29 j 19:14	16°≈07'17	18.95648 AU
conjunction	1489 Dec 27 j 17:14	15°☾31'19	0°-24'-40	direct	1497 Aug 28 j 12:31	15°≈	
minimum elong	1489 Dec 27 j 17:14	15°☾31'19	0°24'42		1497 Oct 14 j 22:43	14°≈08'13	
max. Earth dist.	1489 Dec 28 j 09:51	15°☾33'47	20.61895 AU		1497 Nov 29 j 12:17	15°≈	
retrograde	1490 Apr 14 j 22:35	19°☾35'50		conjunction	1498 Jan 28 j 16:43	18°≈02'59	0°-40'-24
opposition	1490 Jul 01 j 07:22	17°☾36'51	0°-28'-45	minimum elong	1498 Jan 28 j 16:43	18°≈02'59	0°40'24
min. Earth dist.	1490 Jun 30 j 13:46	17°☾38'37	18.64580 AU	max. Earth dist.	1498 Jan 29 j 16:06	18°≈06'22	20.97186 AU
direct	1490 Sep 16 j 04:12	15°☾38'18		retrograde	1498 May 18 j 03:20	22°≈04'28	
conjunction	1491 Jan 01 j 00:33	19°☾39'24	0°-27'-14	min. Earth dist.	1498 Aug 03 j 05:14	20°≈08'04	18.98679 AU
minimum elong	1491 Jan 01 j 00:33	19°☾39'24	0°27'14	opposition	1498 Aug 04 j 04:08	20°≈05'47	0°-45'-18
max. Earth dist.	1491 Jan 01 j 19:27	19°☾42'11	20.67193 AU	direct	1498 Oct 19 j 04:57	18°≈09'12	
retrograde	1491 Apr 19 j 08:17	23°☾43'18		conjunction	1499 Feb 01 j 21:57	22°≈03'24	0°-41'-32
opposition	1491 Jul 05 j 20:57	21°☾44'19	0°-31'-29	minimum elong	1499 Feb 01 j 21:57	22°≈03'24	0°41'33
min. Earth dist.	1491 Jul 05 j 02:36	21°☾46'10	18.69779 AU	max. Earth dist.	1499 Feb 02 j 22:30	22°≈06'57	20.99959 AU
direct	1491 Sep 20 j 15:53	19°☾46'02		retrograde	1499 May 22 j 11:52	26°≈04'45	
conjunction	1492 Jan 05 j 07:11	23°☾45'57	0°-29'-38	opposition	1499 Aug 08 j 13:31	24°≈06'04	0°-46'-26
minimum elong	1492 Jan 05 j 07:11	23°☾45'57	0°29'40	min. Earth dist.	1499 Aug 07 j 14:38	24°≈08'21	19.01191 AU
max. Earth dist.	1492 Jan 06 j 02:11	23°☾48'45	20.72289 AU	direct	1499 Oct 23 j 13:01	22°≈09'38	
retrograde	1492 Apr 22 j 19:02	27°☾49'20		conjunction	1500 Feb 06 j 03:02	26°≈03'20	0°-42'-27
opposition	1492 Jul 09 j 09:51	25°☾50'21	0°-34'-3	minimum elong	1500 Feb 06 j 03:02	26°≈03'20	0°42'27
min. Earth dist.	1492 Jul 08 j 14:02	25°☾52'20	18.74778 AU	max. Earth dist.	1500 Feb 07 j 02:15	26°≈06'41	21.02203 AU
direct	1492 Sep 24 j 02:39	23°☾52'18			1500 May 12 j 03:43	0°≈	
conjunction	1493 Jan 08 j 13:32	27°☾51'10	0°-31'-53	retrograde	1500 May 25 j 21:08	0°≈04'36	
minimum elong	1493 Jan 08 j 13:32	27°☾51'10	0°31'53		1500 Jun 08 j 16:57	30°≈	
max. Earth dist.	1493 Jan 09 j 10:40	27°☾54'16	20.77166 AU	opposition	1500 Aug 11 j 22:42	28°≈05'52	0°-47'-20
retrograde	1493 Feb 16 j 02:45	0°≈		min. Earth dist.	1500 Aug 11 j 00:16	28°≈08'06	19.03165 AU
	1493 Apr 27 j 04:05	1°≈54'04		direct	1500 Oct 26 j 18:35	26°≈09'31	
opposition	1493 Jul 11 j 21:32	30°≈			1501 Feb 08 j 12:43	0°≈	
min. Earth dist.	1493 Jul 13 j 22:07	29°☾55'08	0°-36'-26	conjunction	1501 Feb 09 j 08:07	0°≈02'47	0°-43'-10
direct	1493 Jul 13 j 01:34	29°☾57'12	18.79541 AU	minimum elong	1501 Feb 09 j 08:07	0°≈02'47	0°43'11
	1493 Sep 28 j 12:35	27°☾57'21		max. Earth dist.	1501 Feb 10 j 08:12	0°≈06'15	21.03892 AU
	1493 Dec 09 j 14:15	0°≈		retrograde	1501 May 30 j 05:05	4°≈03'59	
conjunction	1494 Jan 12 j 19:23	1°≈55'14	0°-33'-57	min. Earth dist.	1501 Aug 15 j 08:59	2°≈07'25	19.04575 AU
minimum elong	1494 Jan 12 j 19:23	1°≈55'14	0°33'58	opposition	1501 Aug 16 j 07:24	2°≈05'10	0°-47'-59
max. Earth dist.	1494 Jan 13 j 16:26	1°≈58'18	20.81815 AU	direct	1501 Oct 31 j 02:21	0°≈08'53	
retrograde	1494 May 01 j 14:29	5°≈57'43		conjunction	1502 Feb 13 j 13:04	4°≈01'46	0°-43'-39
opposition	1494 Jul 18 j 09:56	3°≈58'50	0°-38'-37	minimum elong	1502 Feb 13 j 13:04	4°≈01'46	0°43'41
min. Earth dist.	1494 Jul 17 j 12:19	4°≈01'00	18.84069 AU	max. Earth dist.	1502 Feb 14 j 11:48	4°≈05'02	21.05050 AU
direct	1494 Oct 02 j 21:54	2°≈01'19		retrograde	1502 Jun 03 j 14:11	8°≈02'58	
conjunction	1495 Jan 17 j 01:01	5°≈58'18	0°-35'-50	opposition	1502 Aug 20 j 15:49	6°≈04'01	0°-48'-25
minimum elong	1495 Jan 17 j 01:01	5°≈58'18	0°35'51	min. Earth dist.	1502 Aug 19 j 18:02	6°≈06'12	19.05488 AU
max. Earth dist.	1495 Jan 18 j 00:03	6°≈01'39	20.86192 AU	direct	1502 Nov 04 j 07:44	4°≈07'44	
retrograde	1495 May 05 j 23:24	10°≈00'27		conjunction	1503 Feb 17 j 18:09	8°≈00'20	0°-43'-56
opposition	1495 Jul 22 j 21:12	8°≈01'38	0°-40'-36	minimum elong	1503 Feb 17 j 18:10	8°≈00'20	0°43'57
min. Earth dist.	1495 Jul 21 j 23:02	8°≈03'51	18.88289 AU	max. Earth dist.	1503 Feb 18 j 17:49	8°≈03'43	21.05720 AU
direct	1495 Oct 07 j 06:45	6°≈04'23		retrograde	1503 Jun 07 j 21:40	12°≈01'32	
conjunction	1496 Jan 21 j 06:23	10°≈00'32	0°-37'-33	opposition	1503 Aug 24 j 23:46	10°≈02'28	0°-48'-37
				min. Earth dist.	1503 Aug 24 j 01:54	10°≈04'40	19.05925 AU

direct	1503 Nov 08 j 14:34	8° <del>✕</del> 06'10		direct	1511 Dec 10 j 08:41	9° <del>Υ</del> 56'54	
conjunction	1504 Feb 21 j 23:11	11° <del>✕</del> 58'33	0°-44'-1	conjunction	1512 Mar 25 j 02:30	13° <del>Υ</del> 51'08	0°-37'-9
minimum elong	1504 Feb 21 j 23:11	11° <del>✕</del> 58'33	0°44'02	minimum elong	1512 Mar 25 j 02:30	13° <del>Υ</del> 51'08	0°37'09
max. Earth dist.	1504 Feb 22 j 21:29	12° <del>✕</del> 01'44	21.05947 AU	max. Earth dist.	1512 Mar 25 j 19:23	13° <del>Υ</del> 53'33	20.94216 AU
retrograde	1504 Jun 11 j 06:26	15° <del>✕</del> 59'50		retrograde	1512 Jul 14 j 04:00	17° <del>Υ</del> 55'15	
min. Earth dist.	1504 Aug 27 j 10:13	14° <del>✕</del> 02'45	19.05957 AU	opposition	1512 Sep 29 j 16:44	15° <del>Υ</del> 55'18	0°-40'-6
opposition	1504 Aug 28 j 07:21	14° <del>✕</del> 00'38	0°-48'-34	min. Earth dist.	1512 Sep 29 j 01:59	15° <del>Υ</del> 56'48	18.92610 AU
direct	1504 Nov 11 j 19:35	12° <del>✕</del> 04'17		direct	1512 Dec 13 j 13:18	13° <del>Υ</del> 58'24	
conjunction	1505 Feb 25 j 04:29	15° <del>✕</del> 56'34	0°-43'-52	conjunction	1513 Mar 29 j 11:22	17° <del>Υ</del> 53'16	0°-35'-24
minimum elong	1505 Feb 25 j 04:29	15° <del>✕</del> 56'34	0°43'52	minimum elong	1513 Mar 29 j 11:22	17° <del>Υ</del> 53'16	0°35'25
max. Earth dist.	1505 Feb 26 j 03:41	15° <del>✕</del> 59'53	21.05782 AU	max. Earth dist.	1513 Mar 30 j 03:50	17° <del>Υ</del> 55'38	20.90831 AU
retrograde	1505 Jun 15 j 13:51	19° <del>✕</del> 57'59		retrograde	1513 Jul 18 j 14:40	21° <del>Υ</del> 57'57	
opposition	1505 Sep 01 j 14:44	17° <del>✕</del> 58'40	0°-48'-18	min. Earth dist.	1513 Oct 03 j 10:05	19° <del>Υ</del> 59'19	18.88964 AU
min. Earth dist.	1505 Aug 31 j 17:25	18° <del>✕</del> 00'49	19.05602 AU	opposition	1513 Oct 04 j 00:10	19° <del>Υ</del> 57'52	0°-38'-4
direct	1505 Nov 16 j 01:27	16° <del>✕</del> 02'17		direct	1513 Dec 17 j 20:27	18° <del>Υ</del> 00'47	
conjunction	1506 Mar 01 j 09:42	19° <del>✕</del> 54'33	0°-43'-31	conjunction	1514 Apr 02 j 20:35	21° <del>Υ</del> 56'21	0°-33'-28
minimum elong	1506 Mar 01 j 09:42	19° <del>✕</del> 54'33	0°43'32	minimum elong	1514 Apr 02 j 20:35	21° <del>Υ</del> 56'21	0°33'28
max. Earth dist.	1506 Mar 02 j 07:32	19° <del>✕</del> 57'40	21.05253 AU	max. Earth dist.	1514 Apr 03 j 10:19	21° <del>Υ</del> 58'19	20.86946 AU
retrograde	1506 Jun 19 j 22:22	23° <del>✕</del> 56'12		retrograde	1514 Jul 23 j 00:37	26° <del>Υ</del> 01'37	
opposition	1506 Sep 05 j 22:03	21° <del>✕</del> 56'45	0°-47'-47	opposition	1514 Oct 08 j 07:55	24° <del>Υ</del> 01'22	0°-35'-50
min. Earth dist.	1506 Sep 05 j 01:37	21° <del>✕</del> 58'48	19.04900 AU	min. Earth dist.	1514 Oct 07 j 20:05	24° <del>Υ</del> 02'35	18.84836 AU
direct	1506 Nov 20 j 06:19	20° <del>✕</del> 00'19		direct	1514 Dec 22 j 01:57	22° <del>Υ</del> 04'02	
conjunction	1507 Mar 05 j 15:31	23° <del>✕</del> 52'41	0°-42'-58	conjunction	1515 Apr 07 j 06:44	26° <del>Υ</del> 00'23	0°-31'-21
minimum elong	1507 Mar 05 j 15:31	23° <del>✕</del> 52'41	0°42'58	minimum elong	1515 Apr 07 j 06:44	26° <del>Υ</del> 00'23	0°31'22
max. Earth dist.	1507 Mar 06 j 14:03	23° <del>✕</del> 55'54	21.04370 AU	max. Earth dist.	1515 Apr 07 j 19:54	26° <del>Υ</del> 02'16	20.82594 AU
retrograde	1507 Jun 24 j 06:40	27° <del>✕</del> 54'35		retrograde	1515 Jul 11 j 13:57	0° <del>♄</del>	
min. Earth dist.	1507 Sep 09 j 08:34	25° <del>✕</del> 57'06	19.03832 AU	retrograde	1515 Jul 27 j 11:35	0° <del>♄</del> 06'14	
opposition	1507 Sep 10 j 04:59	25° <del>✕</del> 55'02	0°-47'-3	opposition	1515 Aug 12 j 11:02	30° <del>♁</del> <del>Υ</del>	
direct	1507 Nov 24 j 11:46	23° <del>✕</del> 58'35		min. Earth dist.	1515 Oct 12 j 15:31	28° <del>Υ</del> 05'50	0°-33'-25
conjunction	1508 Mar 08 j 21:29	27° <del>✕</del> 51'07	0°-42'-12	direct	1515 Oct 12 j 04:22	28° <del>Υ</del> 06'58	18.80261 AU
minimum elong	1508 Mar 08 j 21:29	27° <del>✕</del> 51'07	0°42'13	1515 Dec 26 j 09:42	26° <del>Υ</del> 08'13		
max. Earth dist.	1508 Mar 09 j 18:21	27° <del>✕</del> 54'06	21.03131 AU	1516 Apr 09 j 03:46	0° <del>♄</del>		
retrograde	1508 Apr 17 j 11:42	0° <del>♁</del>		conjunction	1516 Apr 10 j 17:14	0° <del>♄</del> 05'24	0°-29'-5
retrograde	1508 Jun 27 j 14:48	1° <del>Υ</del> 53'21		minimum elong	1516 Apr 10 j 17:14	0° <del>♄</del> 05'24	0°29'06
opposition	1508 Sep 10 j 21:57	30° <del>♁</del> <del>✕</del>		max. Earth dist.	1516 Apr 11 j 03:45	0° <del>♄</del> 06'54	20.77833 AU
min. Earth dist.	1508 Sep 13 j 12:05	29° <del>✕</del> 53'44	0°-46'-6	retrograde	1516 Jul 30 j 22:05	4° <del>♄</del> 11'55	
direct	1508 Sep 12 j 16:53	29° <del>✕</del> 55'40	19.02412 AU	opposition	1516 Oct 15 j 23:34	2° <del>♄</del> 11'18	0°-30'-49
direct	1508 Nov 27 j 16:15	27° <del>✕</del> 57'13		min. Earth dist.	1516 Oct 15 j 14:40	2° <del>♄</del> 12'13	18.75324 AU
	1509 Feb 07 j 20:21	0° <del>♁</del>		direct	1516 Dec 29 j 15:55	0° <del>♄</del> 13'23	
conjunction	1509 Mar 13 j 03:53	1° <del>Υ</del> 50'02	0°-41'-14	conjunction	1517 Apr 15 j 04:24	4° <del>♄</del> 11'30	0°-26'-39
minimum elong	1509 Mar 13 j 03:53	1° <del>Υ</del> 50'02	0°41'15	minimum elong	1517 Apr 15 j 04:24	4° <del>♄</del> 11'30	0°26'39
max. Earth dist.	1509 Mar 14 j 01:16	1° <del>Υ</del> 53'05	21.01523 AU	max. Earth dist.	1517 Apr 15 j 14:33	4° <del>♄</del> 12'57	20.72743 AU
retrograde	1509 Jul 02 j 00:14	5° <del>Υ</del> 52'40		retrograde	1517 Aug 04 j 09:54	8° <del>♄</del> 18'42	
opposition	1509 Sep 17 j 19:07	3° <del>Υ</del> 52'58	0°-44'-56	opposition	1517 Oct 20 j 07:46	6° <del>♄</del> 17'54	0°-28'-2
min. Earth dist.	1509 Sep 17 j 00:06	3° <del>Υ</del> 54'53	19.00604 AU	min. Earth dist.	1517 Oct 19 j 23:20	6° <del>♄</del> 18'46	18.70083 AU
direct	1509 Dec 01 j 22:02	1° <del>Υ</del> 56'24		direct	1518 Jan 03 j 00:22	4° <del>♄</del> 19'40	
conjunction	1510 Mar 17 j 10:47	5° <del>Υ</del> 49'36	0°-40'-4	conjunction	1518 Apr 19 j 16:16	8° <del>♄</del> 18'46	0°-24'-4
minimum elong	1510 Mar 17 j 10:47	5° <del>Υ</del> 49'36	0°40'05	minimum elong	1518 Apr 19 j 16:16	8° <del>♄</del> 18'46	0°24'05
max. Earth dist.	1510 Mar 18 j 06:10	5° <del>Υ</del> 52'22	20.99528 AU	max. Earth dist.	1518 Apr 19 j 23:53	8° <del>♄</del> 19'52	20.67378 AU
retrograde	1510 Jul 06 j 08:38	9° <del>Υ</del> 52'41		retrograde	1518 Aug 08 j 21:07	12° <del>♄</del> 26'42	
min. Earth dist.	1510 Sep 21 j 08:54	7° <del>Υ</del> 54'40	18.98404 AU	opposition	1518 Oct 24 j 16:15	10° <del>♄</del> 25'43	0°-25'-7
opposition	1510 Sep 22 j 02:15	7° <del>Υ</del> 52'54	0°-43'-32	min. Earth dist.	1518 Oct 24 j 10:07	10° <del>♄</del> 26'21	18.64610 AU
direct	1510 Dec 06 j 02:14	5° <del>Υ</del> 56'15		direct	1519 Jan 07 j 07:07	8° <del>♄</del> 27'09	
conjunction	1511 Mar 21 j 18:26	9° <del>Υ</del> 49'56	0°-38'-42	conjunction	1519 Apr 24 j 05:05	12° <del>♄</del> 27'21	0°-21'-21
minimum elong	1511 Mar 21 j 18:26	9° <del>Υ</del> 49'56	0°38'44	minimum elong	1519 Apr 24 j 05:05	12° <del>♄</del> 27'21	0°21'21
max. Earth dist.	1511 Mar 22 j 13:50	9° <del>Υ</del> 52'42	20.97109 AU	max. Earth dist.	1519 Apr 24 j 12:10	12° <del>♄</del> 28'22	20.61807 AU
retrograde	1511 Jul 10 j 18:52	13° <del>Υ</del> 53'30		retrograde	1519 Jun 10 j 08:03	15° <del>♄</del>	
opposition	1511 Sep 26 j 09:23	11° <del>Υ</del> 53'39	0°-41'-55	retrograde	1519 Aug 13 j 10:26	16° <del>♄</del> 36'02	
min. Earth dist.	1511 Sep 25 j 16:35	11° <del>Υ</del> 55'22	18.95747 AU		1519 Oct 18 j 22:40	15° <del>♁</del> <del>♄</del>	

opposition	1519 Oct 29 j 01:02	14°♄34'54	0°-22'-2	conjunction	1526 May 24 j 21:55	12°♄14'22	0°00'30
min. Earth dist.	1519 Oct 28 j 19:20	14°♄35'29	18.58941 AU	minimum elong	1526 May 24 j 21:57	12°♄14'22	0°00'31
direct	1520 Jan 11 j 16:27	12°♄36'01		behind sun begin	1526 May 24 j 15:12	12°♄13'24	
	1520 Mar 30 j 02:05	15°♄		behind sun end	1526 May 25 j 04:42	12°♄15'21	
				max. Earth dist.	1526 May 24 j 15:48	12°♄13'30	20.19277 AU
conjunction	1520 Apr 27 j 18:21	16°♄37'22	0°-18'-30	retrograde	1526 Sep 12 j 21:28	16°♄29'01	
minimum elong	1520 Apr 27 j 18:21	16°♄37'22	0°18'32	opposition	1526 Nov 27 j 05:18	14°♄27'12	0°02'25
max. Earth dist.	1520 Apr 27 j 22:58	16°♄38'02	20.56060 AU	min. Earth dist.	1526 Nov 27 j 11:29	14°♄26'32	18.15991 AU
retrograde	1520 Aug 16 j 22:38	20°♄46'51		direct	1527 Feb 09 j 17:57	12°♄26'02	
opposition	1520 Nov 01 j 10:23	18°♄45'34	0°-18'-50				
min. Earth dist.	1520 Nov 01 j 06:54	18°♄45'56	18.53132 AU	conjunction	1527 May 29 j 17:55	16°♄37'10	0°03'54
direct	1521 Jan 15 j 00:01	16°♄46'22		minimum elong	1527 May 29 j 17:56	16°♄37'10	0°03'54
				behind sun begin	1527 May 29 j 11:15	16°♄36'12	
conjunction	1521 May 02 j 08:41	20°♄48'57	0°-15'-33	behind sun end	1527 May 30 j 00:37	16°♄38'09	
minimum elong	1521 May 02 j 08:40	20°♄48'57	0°15'34	max. Earth dist.	1527 May 29 j 09:55	16°♄36'00	20.12714 AU
behind sun begin	1521 May 02 j 07:28	20°♄48'47		retrograde	1527 Sep 17 j 15:47	20°♄52'39	
behind sun end	1521 May 02 j 09:52	20°♄49'07		opposition	1527 Dec 01 j 18:38	18°♄50'41	0°06'08
max. Earth dist.	1521 May 02 j 12:40	20°♄49'31	20.50199 AU	min. Earth dist.	1527 Dec 02 j 01:35	18°♄49'57	18.09374 AU
retrograde	1521 Aug 21 j 13:37	24°♄59'16		direct	1528 Feb 14 j 09:11	16°♄49'07	
opposition	1521 Nov 05 j 20:00	22°♄57'51	0°-15'-30				
min. Earth dist.	1521 Nov 05 j 16:56	22°♄58'11	18.47212 AU	conjunction	1528 Jun 02 j 14:30	21°♄01'44	0°07'14
direct	1522 Jan 19 j 10:01	20°♄58'21		minimum elong	1528 Jun 02 j 14:30	21°♄01'44	0°07'14
				behind sun begin	1528 Jun 02 j 08:18	21°♄00'50	
conjunction	1522 May 06 j 23:45	25°♄02'15	0°-12'-30	behind sun end	1528 Jun 02 j 20:43	21°♄02'39	
minimum elong	1522 May 06 j 23:45	25°♄02'15	0°12'31	max. Earth dist.	1528 Jun 02 j 04:18	21°♄00'14	20.06052 AU
behind sun begin	1522 May 06 j 19:30	25°♄01'38		retrograde	1528 Sep 21 j 08:47	25°♄18'01	
behind sun end	1522 May 07 j 04:01	25°♄02'51		opposition	1528 Dec 05 j 08:44	23°♄15'55	0°09'51
max. Earth dist.	1522 May 07 j 01:14	25°♄02'27	20.44233 AU	min. Earth dist.	1528 Dec 05 j 18:13	23°♄14'54	18.02698 AU
retrograde	1522 Aug 26 j 03:37	29°♄13'25		direct	1529 Feb 17 j 23:27	21°♄13'55	
opposition	1522 Nov 10 j 06:21	27°♄11'55	0°-12'-4				
min. Earth dist.	1522 Nov 10 j 05:42	27°♄11'59	18.41199 AU	conjunction	1529 Jun 07 j 12:00	25°♄28'02	0°10'33
direct	1523 Jan 23 j 19:00	25°♄12'06		minimum elong	1529 Jun 07 j 12:00	25°♄28'02	0°10'33
				behind sun begin	1529 Jun 07 j 06:48	25°♄27'16	
conjunction	1523 May 11 j 15:56	29°♄17'22	0°-9'-22	behind sun end	1529 Jun 07 j 17:12	25°♄28'48	
minimum elong	1523 May 11 j 15:56	29°♄17'22	0°09'23	max. Earth dist.	1529 Jun 06 j 23:53	25°♄26'14	19.99384 AU
behind sun begin	1523 May 11 j 10:20	29°♄16'34		retrograde	1529 Sep 26 j 03:50	29°♄45'05	
behind sun end	1523 May 11 j 21:32	29°♄18'10		opposition	1529 Dec 09 j 23:10	27°♄42'49	0°13'31
max. Earth dist.	1523 May 11 j 16:26	29°♄17'27	20.38175 AU	min. Earth dist.	1529 Dec 10 j 09:21	27°♄41'44	17.96047 AU
	1523 May 23 j 19:46	0°♄		direct	1530 Feb 22 j 16:34	25°♄40'23	
retrograde	1523 Aug 30 j 19:50	3°♄29'24					
opposition	1523 Nov 14 j 16:59	1°♄27'50	0°-8'-33	conjunction	1530 Jun 12 j 10:21	29°♄56'00	0°13'50
min. Earth dist.	1523 Nov 14 j 16:56	1°♄27'51	18.35083 AU	minimum elong	1530 Jun 12 j 10:21	29°♄56'00	0°13'49
	1523 Dec 23 j 14:09	30°♄		behind sun begin	1530 Jun 12 j 06:59	29°♄55'30	
direct	1524 Jan 28 j 05:58	29°♄27'44		behind sun end	1530 Jun 12 j 13:42	29°♄56'30	
	1524 Mar 03 j 10:01	0°♄		max. Earth dist.	1530 Jun 11 j 20:35	29°♄53'57	19.92758 AU
					1530 Jun 13 j 13:02	0°♄	
conjunction	1524 May 15 j 08:56	3°♄34'26	0°-6'-10	retrograde	1530 Sep 30 j 21:50	4°♄13'47	
minimum elong	1524 May 15 j 08:56	3°♄34'26	0°06'10	opposition	1530 Dec 14 j 14:27	2°♄11'24	0°17'08
behind sun begin	1524 May 15 j 02:32	3°♄33'31		min. Earth dist.	1530 Dec 15 j 02:56	2°♄10'03	17.89479 AU
behind sun end	1524 May 15 j 15:20	3°♄35'20		direct	1531 Feb 27 j 08:17	0°♄08'31	
max. Earth dist.	1524 May 15 j 06:52	3°♄34'09	20.32004 AU				
retrograde	1524 Sep 03 j 11:35	7°♄47'21		conjunction	1531 Jun 17 j 09:16	4°♄25'37	0°17'02
opposition	1524 Nov 18 j 04:31	5°♄45'43	0°-4'-57	minimum elong	1531 Jun 17 j 09:16	4°♄25'37	0°17'03
min. Earth dist.	1524 Nov 18 j 07:07	5°♄45'26	18.28858 AU	max. Earth dist.	1531 Jun 16 j 17:31	4°♄23'15	19.86266 AU
direct	1525 Jan 31 j 16:33	3°♄45'17		retrograde	1531 Oct 05 j 17:58	8°♄44'08	
				opposition	1531 Dec 19 j 06:12	6°♄41'36	0°20'41
conjunction	1525 May 20 j 02:56	7°♄53'26	0°-2'-54	min. Earth dist.	1531 Dec 19 j 19:12	6°♄40'11	17.83082 AU
minimum elong	1525 May 20 j 02:54	7°♄53'26	0°02'55	direct	1532 Mar 03 j 03:18	4°♄38'17	
behind sun begin	1525 May 19 j 20:10	7°♄52'28					
behind sun end	1525 May 20 j 09:39	7°♄54'24		conjunction	1532 Jun 21 j 08:59	8°♄56'52	0°20'10
max. Earth dist.	1525 May 19 j 23:26	7°♄52'58	20.25718 AU	minimum elong	1532 Jun 21 j 08:59	8°♄56'52	0°20'10
retrograde	1525 Sep 08 j 05:00	12°♄07'14		max. Earth dist.	1532 Jun 20 j 16:21	8°♄54'22	19.79967 AU
opposition	1525 Nov 22 j 16:33	10°♄05'31	0°-1'-17	retrograde	1532 Oct 09 j 12:58	13°♄16'05	
min. Earth dist.	1525 Nov 22 j 19:56	10°♄05'09	18.22497 AU	opposition	1532 Dec 22 j 22:47	11°♄13'27	0°24'06
direct	1526 Feb 05 j 05:31	8°♄04'44		min. Earth dist.	1532 Dec 23 j 13:37	11°♄11'50	17.76921 AU
asc. node	1526 Apr 01 j 03:47	9°♄20'41		direct	1533 Mar 07 j 20:24	9°♄09'44	

conjunction	1533 Jun 26 j 09:13	13° $\mathring{S}$ 29'46	0°23'11	min. Earth dist.	1541 Jan 29 j 09:37	18° $\mathring{O}$ 24'47	17.40798 AU
minimum elong	1533 Jun 26 j 09:12	13° $\mathring{S}$ 29'46	0°23'11	direct	1541 Apr 14 j 03:17	16° $\mathring{O}$ 21'20	
max. Earth dist.	1533 Jun 25 j 14:35	13° $\mathring{S}$ 26'57	19.73953 AU	max. Earth dist.	1541 Aug 03 j 06:36	20° $\mathring{O}$ 47'04	19.39306 AU
retrograde	1533 Oct 14 j 10:19	17° $\mathring{S}$ 49'40					
opposition	1533 Dec 27 j 15:59	15° $\mathring{S}$ 46'57	0°27'24	conjunction	1541 Aug 04 j 08:19	20° $\mathring{O}$ 51'04	0°40'59
min. Earth dist.	1533 Dec 28 j 07:15	15° $\mathring{S}$ 45'17	17.71070 AU	minimum elong	1541 Aug 04 j 08:19	20° $\mathring{O}$ 51'04	0°41'00
direct	1534 Mar 12 j 16:59	13° $\mathring{S}$ 42'51		retrograde	1541 Nov 21 j 02:08	25° $\mathring{O}$ 14'41	
				opposition	1542 Feb 02 j 11:33	23° $\mathring{O}$ 12'11	0°46'22
conjunction	1534 Jul 01 j 10:22	18° $\mathring{S}$ 04'21	0°26'04	min. Earth dist.	1542 Feb 03 j 09:29	23° $\mathring{O}$ 09'47	17.38003 AU
minimum elong	1534 Jul 01 j 10:22	18° $\mathring{S}$ 04'21	0°26'04	direct	1542 Apr 19 j 04:13	21° $\mathring{O}$ 06'14	
max. Earth dist.	1534 Jun 30 j 15:25	18° $\mathring{S}$ 01'28	19.68259 AU	max. Earth dist.	1542 Aug 08 j 11:22	25° $\mathring{O}$ 32'45	19.36717 AU
retrograde	1534 Oct 19 j 06:46	22° $\mathring{S}$ 24'53					
opposition	1535 Jan 01 j 09:56	20° $\mathring{S}$ 22'08	0°30'32	conjunction	1542 Aug 09 j 12:43	25° $\mathring{O}$ 36'43	0°42'08
min. Earth dist.	1535 Jan 02 j 02:37	20° $\mathring{S}$ 20'19	17.65565 AU	minimum elong	1542 Aug 09 j 12:42	25° $\mathring{O}$ 36'43	0°42'08
direct	1535 Mar 17 j 12:03	18° $\mathring{S}$ 17'43			1542 Nov 22 j 05:13	0° $\mathring{O}$	
				retrograde	1542 Nov 26 j 02:52	0° $\mathring{O}$ 00'26	
conjunction	1535 Jul 06 j 11:57	22° $\mathring{S}$ 40'36	0°28'48		1542 Nov 30 j 00:02	30° $\mathring{R}$ $\mathring{O}$	
minimum elong	1535 Jul 06 j 11:57	22° $\mathring{S}$ 40'36	0°28'47	opposition	1543 Feb 07 j 10:43	27° $\mathring{O}$ 57'57	0°47'30
max. Earth dist.	1535 Jul 05 j 15:00	22° $\mathring{S}$ 37'24	19.62955 AU	min. Earth dist.	1543 Feb 08 j 08:12	27° $\mathring{O}$ 55'35	17.35626 AU
retrograde	1535 Oct 24 j 05:03	27° $\mathring{S}$ 01'47		direct	1543 Apr 24 j 07:15	25° $\mathring{O}$ 51'50	
opposition	1536 Jan 06 j 04:37	24° $\mathring{S}$ 59'02	0°33'30		1543 Aug 08 j 14:50	0° $\mathring{O}$	
min. Earth dist.	1536 Jan 06 j 21:45	24° $\mathring{S}$ 57'10	17.60470 AU				
direct	1536 Mar 21 j 09:30	22° $\mathring{S}$ 54'20		conjunction	1543 Aug 14 j 16:58	0° $\mathring{O}$ 22'52	0°43'00
				minimum elong	1543 Aug 14 j 16:58	0° $\mathring{O}$ 22'52	0°43'00
conjunction	1536 Jul 10 j 14:08	27° $\mathring{S}$ 18'35	0°31'22	max. Earth dist.	1543 Aug 13 j 15:02	0° $\mathring{O}$ 18'49	19.34571 AU
minimum elong	1536 Jul 10 j 14:07	27° $\mathring{S}$ 18'35	0°31'22	retrograde	1543 Dec 01 j 01:05	4° $\mathring{O}$ 46'37	
max. Earth dist.	1536 Jul 09 j 17:24	27° $\mathring{S}$ 15'25	19.58054 AU	opposition	1544 Feb 12 j 10:28	2° $\mathring{O}$ 44'08	0°48'18
	1536 Aug 26 j 12:09	0° $\mathring{O}$		min. Earth dist.	1544 Feb 13 j 08:49	2° $\mathring{O}$ 41'41	17.33736 AU
retrograde	1536 Oct 28 j 03:40	1° $\mathring{O}$ 40'20		direct	1544 Apr 28 j 09:14	0° $\mathring{O}$ 37'51	
	1537 Jan 01 j 10:15	30° $\mathring{R}$ $\mathring{S}$					
opposition	1537 Jan 10 j 00:05	29° $\mathring{S}$ 37'38	0°36'16	conjunction	1544 Aug 18 j 20:58	5° $\mathring{O}$ 09'19	0°43'34
min. Earth dist.	1537 Jan 10 j 18:14	29° $\mathring{S}$ 35'39	17.55772 AU	minimum elong	1544 Aug 18 j 20:58	5° $\mathring{O}$ 09'19	0°43'34
direct	1537 Mar 26 j 06:26	27° $\mathring{S}$ 32'43		max. Earth dist.	1544 Aug 17 j 19:31	5° $\mathring{O}$ 05'19	19.32939 AU
	1537 Jun 12 j 14:39	0° $\mathring{O}$		retrograde	1544 Dec 05 j 01:51	9° $\mathring{O}$ 33'00	
conjunction	1537 Jul 15 j 16:53	1° $\mathring{O}$ 58'16	0°33'45	opposition	1545 Feb 16 j 10:26	7° $\mathring{O}$ 30'31	0°48'46
minimum elong	1537 Jul 15 j 16:53	1° $\mathring{O}$ 58'16	0°33'44	min. Earth dist.	1545 Feb 17 j 07:42	7° $\mathring{O}$ 28'11	17.32361 AU
max. Earth dist.	1537 Jul 14 j 18:05	1° $\mathring{O}$ 54'45	19.53559 AU	direct	1545 May 03 j 13:49	5° $\mathring{O}$ 24'07	
retrograde	1537 Nov 02 j 02:45	6° $\mathring{O}$ 20'33		max. Earth dist.	1545 Aug 22 j 23:52	9° $\mathring{O}$ 51'56	19.31837 AU
opposition	1538 Jan 14 j 20:06	4° $\mathring{O}$ 17'55	0°38'49	conjunction	1545 Aug 24 j 00:53	9° $\mathring{O}$ 55'51	0°43'49
min. Earth dist.	1538 Jan 15 j 15:05	4° $\mathring{O}$ 15'50	17.51481 AU	minimum elong	1545 Aug 24 j 00:53	9° $\mathring{O}$ 55'51	0°43'48
direct	1538 Mar 31 j 04:30	2° $\mathring{O}$ 12'45		retrograde	1545 Dec 10 j 00:07	14° $\mathring{O}$ 19'24	
				opposition	1546 Feb 21 j 10:46	12° $\mathring{O}$ 16'55	0°48'53
conjunction	1538 Jul 20 j 20:23	6° $\mathring{O}$ 39'33	0°35'55	min. Earth dist.	1546 Feb 22 j 08:39	12° $\mathring{O}$ 14'32	17.31556 AU
minimum elong	1538 Jul 20 j 20:23	6° $\mathring{O}$ 39'33	0°35'55	direct	1546 May 08 j 16:14	10° $\mathring{O}$ 10'25	
max. Earth dist.	1538 Jul 19 j 21:49	6° $\mathring{O}$ 36'04	19.49444 AU	max. Earth dist.	1546 Aug 28 j 03:52	14° $\mathring{O}$ 38'27	19.31338 AU
retrograde	1538 Nov 07 j 03:22	11° $\mathring{O}$ 02'17					
opposition	1539 Jan 19 j 17:01	8° $\mathring{O}$ 59'43	0°41'07	conjunction	1546 Aug 29 j 04:24	14° $\mathring{O}$ 42'18	0°43'46
min. Earth dist.	1539 Jan 20 j 12:44	8° $\mathring{O}$ 57'33	17.47550 AU	minimum elong	1546 Aug 29 j 04:24	14° $\mathring{O}$ 42'18	0°43'47
direct	1539 Apr 05 j 03:21	6° $\mathring{O}$ 54'22		retrograde	1546 Dec 15 j 01:02	19° $\mathring{O}$ 05'38	
				opposition	1547 Feb 26 j 11:24	17° $\mathring{O}$ 03'11	0°48'40
conjunction	1539 Jul 25 j 23:59	11° $\mathring{O}$ 22'15	0°37'52	min. Earth dist.	1547 Feb 27 j 07:36	17° $\mathring{O}$ 00'59	17.31364 AU
minimum elong	1539 Jul 25 j 23:58	11° $\mathring{O}$ 22'15	0°37'52	direct	1547 May 13 j 20:58	14° $\mathring{O}$ 56'39	
max. Earth dist.	1539 Jul 24 j 23:28	11° $\mathring{O}$ 18'27	19.45691 AU	max. Earth dist.	1547 Sep 02 j 08:30	19° $\mathring{O}$ 24'55	19.31464 AU
	1539 Oct 02 j 04:59	15° $\mathring{O}$					
retrograde	1539 Nov 12 j 02:24	15° $\mathring{O}$ 45'23		conjunction	1547 Sep 03 j 07:29	19° $\mathring{O}$ 28'32	0°43'25
	1539 Dec 23 j 18:41	15° $\mathring{R}$ $\mathring{O}$		minimum elong	1547 Sep 03 j 07:29	19° $\mathring{O}$ 28'32	0°43'25
opposition	1540 Jan 24 j 14:38	13° $\mathring{O}$ 42'51	0°43'09	retrograde	1547 Dec 19 j 23:36	23° $\mathring{O}$ 51'35	
min. Earth dist.	1540 Jan 25 j 11:19	13° $\mathring{O}$ 40'35	17.43993 AU	opposition	1548 Mar 02 j 12:23	21° $\mathring{O}$ 49'13	0°48'07
direct	1540 Apr 09 j 02:32	11° $\mathring{O}$ 37'17		min. Earth dist.	1548 Mar 03 j 08:41	21° $\mathring{O}$ 47'01	17.31822 AU
	1540 Jul 12 j 06:24	15° $\mathring{O}$		direct	1548 May 17 j 23:03	19° $\mathring{O}$ 42'42	
max. Earth dist.	1540 Jul 29 j 03:55	16° $\mathring{O}$ 02'25	19.42311 AU	max. Earth dist.	1548 Sep 06 j 11:35	24° $\mathring{O}$ 10'54	19.32261 AU
conjunction	1540 Jul 30 j 04:06	16° $\mathring{O}$ 06'10	0°39'33	conjunction	1548 Sep 07 j 10:10	24° $\mathring{O}$ 14'28	0°42'47
minimum elong	1540 Jul 30 j 04:06	16° $\mathring{O}$ 06'10	0°39'33	minimum elong	1548 Sep 07 j 10:10	24° $\mathring{O}$ 14'28	0°42'46
retrograde	1540 Nov 16 j 03:32	20° $\mathring{O}$ 29'35		retrograde	1548 Dec 24 j 00:35	28° $\mathring{O}$ 37'11	
opposition	1541 Jan 28 j 12:44	18° $\mathring{O}$ 27'05	0°44'55	opposition	1549 Mar 07 j 13:14	26° $\mathring{O}$ 34'56	0°47'14

min. Earth dist.	1549 Mar 08 j 07:37	26° $\overline{\text{M}}$ 32'56	17.32941 AU	max. Earth dist.	1556 Oct 14 j 23:38	1° $\overline{\text{M}}$ 56'53	19.57618 AU
direct	1549 May 23 j 03:25	24° $\overline{\text{M}}$ 28'30		retrograde	1557 Jan 30 j 10:57	6° $\overline{\text{M}}$ 16'46	
				opposition	1557 Apr 14 j 22:22	4° $\overline{\text{M}}$ 15'48	0°29'43
conjunction	1549 Sep 12 j 12:36	29° $\overline{\text{M}}$ 00'02	0°41'51	min. Earth dist.	1557 Apr 15 j 07:56	4° $\overline{\text{M}}$ 14'47	17.60002 AU
minimum elong	1549 Sep 12 j 12:36	29° $\overline{\text{M}}$ 00'02	0°41'51	direct	1557 Jul 01 j 02:26	2° $\overline{\text{M}}$ 11'19	
max. Earth dist.	1549 Sep 11 j 16:06	28° $\overline{\text{M}}$ 56'49	19.33702 AU				
	1549 Sep 28 j 11:51	0° $\overline{\text{A}}$		conjunction	1557 Oct 20 j 08:04	6° $\overline{\text{M}}$ 36'23	0°25'15
retrograde	1549 Dec 28 j 23:12	3° $\overline{\text{A}}$ 22'23		minimum elong	1557 Oct 20 j 08:04	6° $\overline{\text{M}}$ 36'23	0°25'15
opposition	1550 Mar 12 j 14:34	1° $\overline{\text{A}}$ 20'17	0°46'02	max. Earth dist.	1557 Oct 19 j 22:45	6° $\overline{\text{M}}$ 34'56	19.62455 AU
min. Earth dist.	1550 Mar 13 j 08:48	1° $\overline{\text{A}}$ 18'19	17.34686 AU	retrograde	1558 Feb 04 j 06:45	10° $\overline{\text{M}}$ 53'36	
	1550 Apr 15 j 02:55	30° $\overline{\text{R}}$ $\overline{\text{M}}$		opposition	1558 Apr 19 j 22:30	8° $\overline{\text{M}}$ 52'45	0°26'30
direct	1550 May 28 j 05:18	29° $\overline{\text{M}}$ 14'02		min. Earth dist.	1558 Apr 20 j 06:07	8° $\overline{\text{M}}$ 51'57	17.64969 AU
	1550 Jul 09 j 09:48	0° $\overline{\text{A}}$		direct	1558 Jul 06 j 04:51	6° $\overline{\text{M}}$ 48'32	
conjunction	1550 Sep 17 j 14:16	3° $\overline{\text{A}}$ 45'11	0°40'37	conjunction	1558 Oct 25 j 03:36	11° $\overline{\text{M}}$ 12'18	0°22'18
minimum elong	1550 Sep 17 j 14:16	3° $\overline{\text{A}}$ 45'11	0°40'37	minimum elong	1558 Oct 25 j 03:36	11° $\overline{\text{M}}$ 12'18	0°22'18
max. Earth dist.	1550 Sep 16 j 18:05	3° $\overline{\text{A}}$ 42'01	19.35754 AU	max. Earth dist.	1558 Oct 24 j 19:38	11° $\overline{\text{M}}$ 11'04	19.67577 AU
retrograde	1551 Jan 02 j 23:55	8° $\overline{\text{A}}$ 07'06			1559 Jan 07 j 15:05	15° $\overline{\text{M}}$	
opposition	1551 Mar 17 j 15:51	6° $\overline{\text{A}}$ 05'11	0°44'31	retrograde	1559 Feb 09 j 01:21	15° $\overline{\text{M}}$ 28'40	
min. Earth dist.	1551 Mar 18 j 08:11	6° $\overline{\text{A}}$ 03'25	17.37017 AU		1559 Mar 14 j 10:53	15° $\overline{\text{R}}$ $\overline{\text{M}}$	
direct	1551 Jun 02 j 09:26	3° $\overline{\text{A}}$ 59'08		opposition	1559 Apr 24 j 22:14	13° $\overline{\text{M}}$ 27'54	0°23'07
				min. Earth dist.	1559 Apr 25 j 04:40	13° $\overline{\text{M}}$ 27'14	17.70251 AU
conjunction	1551 Sep 22 j 15:37	8° $\overline{\text{A}}$ 29'48	0°39'08	direct	1559 Jul 11 j 04:31	11° $\overline{\text{M}}$ 23'57	
minimum elong	1551 Sep 22 j 15:37	8° $\overline{\text{A}}$ 29'48	0°39'09		1559 Oct 17 j 10:40	15° $\overline{\text{M}}$	
max. Earth dist.	1551 Sep 21 j 21:53	8° $\overline{\text{A}}$ 27'01	19.38354 AU				
retrograde	1552 Jan 07 j 22:22	12° $\overline{\text{A}}$ 51'12		conjunction	1559 Oct 29 j 22:19	15° $\overline{\text{M}}$ 46'20	0°19'13
opposition	1552 Mar 21 j 17:16	10° $\overline{\text{A}}$ 49'29	0°42'42	minimum elong	1559 Oct 29 j 22:19	15° $\overline{\text{M}}$ 46'20	0°19'14
min. Earth dist.	1552 Mar 22 j 09:13	10° $\overline{\text{A}}$ 47'46	17.39864 AU	max. Earth dist.	1559 Oct 29 j 16:44	15° $\overline{\text{M}}$ 45'29	19.73019 AU
direct	1552 Jun 06 j 11:20	8° $\overline{\text{A}}$ 43'40		retrograde	1560 Feb 13 j 20:33	20° $\overline{\text{M}}$ 01'50	
				opposition	1560 Apr 28 j 21:10	18° $\overline{\text{M}}$ 01'10	0°19'38
conjunction	1552 Sep 26 j 16:07	13° $\overline{\text{A}}$ 13'43	0°37'23	min. Earth dist.	1560 Apr 29 j 01:05	18° $\overline{\text{M}}$ 00'45	17.75842 AU
minimum elong	1552 Sep 26 j 16:07	13° $\overline{\text{A}}$ 13'43	0°37'23	direct	1560 Jul 15 j 05:22	15° $\overline{\text{M}}$ 57'31	
max. Earth dist.	1552 Sep 25 j 22:35	13° $\overline{\text{A}}$ 10'57	19.41445 AU				
retrograde	1553 Jan 11 j 22:15	17° $\overline{\text{A}}$ 34'34		conjunction	1560 Nov 02 j 16:00	20° $\overline{\text{M}}$ 18'29	0°16'03
opposition	1553 Mar 26 j 18:36	15° $\overline{\text{A}}$ 33'01	0°40'36	minimum elong	1560 Nov 02 j 16:00	20° $\overline{\text{M}}$ 18'29	0°16'02
min. Earth dist.	1553 Mar 27 j 08:56	15° $\overline{\text{A}}$ 31'29	17.43174 AU	behind sun begin	1560 Nov 02 j 15:04	20° $\overline{\text{M}}$ 18'20	
direct	1553 Jun 11 j 15:18	13° $\overline{\text{A}}$ 27'27		behind sun end	1560 Nov 02 j 16:56	20° $\overline{\text{M}}$ 18'37	
				max. Earth dist.	1560 Nov 02 j 12:14	20° $\overline{\text{M}}$ 17'54	19.78773 AU
conjunction	1553 Oct 01 j 16:12	17° $\overline{\text{A}}$ 56'45	0°35'23	retrograde	1561 Feb 17 j 13:57	24° $\overline{\text{M}}$ 33'05	
minimum elong	1553 Oct 01 j 16:12	17° $\overline{\text{A}}$ 56'45	0°35'22	opposition	1561 May 03 j 19:48	22° $\overline{\text{M}}$ 32'32	0°16'03
max. Earth dist.	1553 Oct 01 j 01:06	17° $\overline{\text{A}}$ 54'22	19.44959 AU	min. Earth dist.	1561 May 03 j 22:32	22° $\overline{\text{M}}$ 32'15	17.81763 AU
retrograde	1554 Jan 16 j 19:47	22° $\overline{\text{A}}$ 16'58		direct	1561 Jul 20 j 02:48	20° $\overline{\text{M}}$ 29'12	
opposition	1554 Mar 31 j 19:55	20° $\overline{\text{A}}$ 15'37	0°38'13				
min. Earth dist.	1554 Apr 01 j 09:26	20° $\overline{\text{A}}$ 14'10	17.46871 AU	conjunction	1561 Nov 07 j 08:45	24° $\overline{\text{M}}$ 48'43	0°12'48
direct	1554 Jun 16 j 17:51	18° $\overline{\text{A}}$ 10'19		minimum elong	1561 Nov 07 j 08:44	24° $\overline{\text{M}}$ 48'43	0°12'49
				behind sun begin	1561 Nov 07 j 04:34	24° $\overline{\text{M}}$ 48'06	
conjunction	1554 Oct 06 j 15:23	22° $\overline{\text{A}}$ 38'43	0°33'09	behind sun end	1561 Nov 07 j 12:54	24° $\overline{\text{M}}$ 49'21	
minimum elong	1554 Oct 06 j 15:23	22° $\overline{\text{A}}$ 38'43	0°33'09	max. Earth dist.	1561 Nov 07 j 07:10	24° $\overline{\text{M}}$ 48'29	19.84856 AU
max. Earth dist.	1554 Oct 06 j 00:36	22° $\overline{\text{A}}$ 36'24	19.48848 AU	retrograde	1562 Feb 22 j 08:33	29° $\overline{\text{M}}$ 02'26	
retrograde	1555 Jan 21 j 18:12	26° $\overline{\text{A}}$ 58'17		opposition	1562 May 08 j 17:45	27° $\overline{\text{M}}$ 02'02	0°12'24
opposition	1555 Apr 05 j 21:05	24° $\overline{\text{A}}$ 57'03	0°35'36	min. Earth dist.	1562 May 08 j 17:31	27° $\overline{\text{M}}$ 02'04	17.87987 AU
min. Earth dist.	1555 Apr 06 j 09:10	24° $\overline{\text{A}}$ 55'46	17.50939 AU	direct	1562 Jul 25 j 01:53	24° $\overline{\text{M}}$ 59'06	
direct	1555 Jun 21 j 21:19	22° $\overline{\text{A}}$ 52'02					
				conjunction	1562 Nov 12 j 00:38	29° $\overline{\text{M}}$ 17'09	0°09'31
conjunction	1555 Oct 11 j 13:46	27° $\overline{\text{A}}$ 19'25	0°30'42	minimum elong	1562 Nov 12 j 00:37	29° $\overline{\text{M}}$ 17'09	0°09'31
minimum elong	1555 Oct 11 j 13:46	27° $\overline{\text{A}}$ 19'25	0°30'41	behind sun begin	1562 Nov 11 j 19:07	29° $\overline{\text{M}}$ 16'19	
max. Earth dist.	1555 Oct 11 j 01:27	27° $\overline{\text{A}}$ 17'30	19.53083 AU	behind sun end	1562 Nov 12 j 06:07	29° $\overline{\text{M}}$ 17'58	
	1555 Nov 26 j 09:31	0° $\overline{\text{M}}$		max. Earth dist.	1562 Nov 12 j 01:15	29° $\overline{\text{M}}$ 17'14	19.91223 AU
retrograde	1556 Jan 26 j 14:43	1° $\overline{\text{M}}$ 38'16			1562 Nov 23 j 15:56	0° $\overline{\text{A}}$	
	1556 Mar 31 j 21:49	30° $\overline{\text{R}}$ $\overline{\text{A}}$		retrograde	1563 Feb 27 j 01:20	3° $\overline{\text{A}}$ 30'00	
opposition	1556 Apr 09 j 21:59	29° $\overline{\text{A}}$ 37'11	0°32'46	opposition	1563 May 13 j 15:17	1° $\overline{\text{A}}$ 29'46	0°08'42
min. Earth dist.	1556 Apr 10 j 08:41	29° $\overline{\text{A}}$ 36'03	17.55316 AU	min. Earth dist.	1563 May 13 j 14:00	1° $\overline{\text{A}}$ 29'54	17.94488 AU
direct	1556 Jun 26 j 00:22	27° $\overline{\text{A}}$ 32'26			1563 Jun 23 j 03:36	30° $\overline{\text{R}}$ $\overline{\text{M}}$	
	1556 Sep 12 j 17:09	0° $\overline{\text{M}}$		direct	1563 Jul 29 j 21:47	29° $\overline{\text{M}}$ 27'14	
					1563 Sep 03 j 19:00	0° $\overline{\text{A}}$	
conjunction	1556 Oct 15 j 11:19	1° $\overline{\text{M}}$ 58'42	0°28'03				
minimum elong	1556 Oct 15 j 11:19	1° $\overline{\text{M}}$ 58'42	0°28'04	conjunction	1563 Nov 16 j 15:32	3° $\overline{\text{A}}$ 43'48	0°06'11

minimum elong	1563 Nov 16 j 15:32	3°♂43'48	0°06'12	opposition	1570 Jun 14 j 04:38	1°♂55'48	0°-16'-46
behind sun begin	1563 Nov 16 j 09:18	3°♂42'52		min. Earth dist.	1570 Jun 13 j 15:35	1°♂57'07	18.41328 AU
behind sun end	1563 Nov 16 j 21:46	3°♂44'44			1570 Aug 17 j 20:03	30°♂♂	
max. Earth dist.	1563 Nov 16 j 17:59	3°♂44'08	19.97840 AU	direct	1570 Aug 30 j 07:46	29°♂56'05	
retrograde	1564 Mar 02 j 18:52	7°♂55'48			1570 Sep 11 j 15:29	0°♂	
opposition	1564 May 17 j 12:03	5°♂55'45	0°04'58				
min. Earth dist.	1564 May 17 j 07:52	5°♂56'11	18.01183 AU	conjunction	1570 Dec 16 j 03:18	4°♂02'24	0°-16'-41
direct	1564 Aug 02 j 19:24	3°♂53'39		minimum elong	1570 Dec 16 j 03:18	4°♂02'24	0°16'41
				max. Earth dist.	1570 Dec 16 j 16:59	4°♂04'27	20.44420 AU
conjunction	1564 Nov 20 j 05:46	8°♂08'44	0°02'50	retrograde	1571 Apr 02 j 23:01	8°♂08'50	
minimum elong	1564 Nov 20 j 05:46	8°♂08'44	0°02'50	opposition	1571 Jun 18 j 21:04	6°♂09'44	0°-20'-7
behind sun begin	1564 Nov 19 j 23:13	8°♂07'45		min. Earth dist.	1571 Jun 18 j 07:43	6°♂11'05	18.47444 AU
behind sun end	1564 Nov 20 j 12:18	8°♂09'42		direct	1571 Sep 03 j 22:50	4°♂10'20	
max. Earth dist.	1564 Nov 20 j 10:28	8°♂09'25	20.04601 AU				
retrograde	1565 Mar 07 j 10:34	12°♂19'53		conjunction	1571 Dec 20 j 12:17	8°♂15'15	0°-19'-38
opposition	1565 May 22 j 08:21	10°♂20'01	0°01'14	minimum elong	1571 Dec 20 j 12:17	8°♂15'15	0°19'38
min. Earth dist.	1565 May 22 j 03:29	10°♂20'31	18.07999 AU	max. Earth dist.	1571 Dec 21 j 02:20	8°♂17'20	20.50426 AU
direct	1565 Aug 07 j 14:16	8°♂18'22		retrograde	1572 Apr 06 j 12:13	12°♂20'58	
desc. node	1565 Sep 21 j 14:19	9°♂09'14		opposition	1572 Jun 22 j 12:38	10°♂21'54	0°-23'-18
				min. Earth dist.	1572 Jun 21 j 21:17	10°♂23'27	18.53342 AU
conjunction	1565 Nov 24 j 19:09	12°♂31'57	0°00'-35	direct	1572 Sep 07 j 13:33	8°♂22'46	
minimum elong	1565 Nov 24 j 19:10	12°♂31'57	0°00'37				
behind sun begin	1565 Nov 24 j 12:38	12°♂30'59		conjunction	1572 Dec 23 j 20:39	12°♂26'21	0°-22'-27
behind sun end	1565 Nov 25 j 01:42	12°♂32'55		minimum elong	1572 Dec 23 j 20:39	12°♂26'21	0°22'29
max. Earth dist.	1565 Nov 25 j 01:11	12°♂32'51	20.11454 AU	max. Earth dist.	1572 Dec 24 j 12:58	12°♂28'46	20.56208 AU
retrograde	1566 Mar 12 j 03:03	16°♂42'17		retrograde	1573 Apr 10 j 21:47	16°♂31'23	
opposition	1566 May 27 j 04:04	14°♂42'36	0°-2'-28	min. Earth dist.	1573 Jun 26 j 11:43	14°♂33'57	18.59033 AU
min. Earth dist.	1566 May 26 j 20:27	14°♂43'23	18.14861 AU	opposition	1573 Jun 27 j 03:35	14°♂32'21	0°-26'-22
direct	1566 Aug 12 j 10:21	12°♂41'22		direct	1573 Sep 12 j 02:56	12°♂33'30	
conjunction	1566 Nov 29 j 07:47	16°♂53'29	0°-3'-58	conjunction	1573 Dec 28 j 04:19	16°♂35'47	0°-25'-8
minimum elong	1566 Nov 29 j 07:46	16°♂53'29	0°03'59	minimum elong	1573 Dec 28 j 04:19	16°♂35'47	0°25'09
behind sun begin	1566 Nov 29 j 01:18	16°♂52'31		max. Earth dist.	1573 Dec 28 j 21:04	16°♂38'16	20.61815 AU
behind sun end	1566 Nov 29 j 14:14	16°♂54'26		retrograde	1574 Apr 15 j 09:59	20°♂40'12	
max. Earth dist.	1566 Nov 29 j 16:05	16°♂54'43	20.18304 AU	opposition	1574 Jul 01 j 17:48	18°♂41'11	0°-29'-15
retrograde	1567 Mar 16 j 17:16	21°♂03'00		min. Earth dist.	1574 Jun 30 j 23:57	18°♂42'58	18.64564 AU
opposition	1567 May 31 j 23:20	19°♂03'29	0°-6'-9	direct	1574 Sep 16 j 15:23	16°♂42'36	
min. Earth dist.	1567 May 31 j 15:13	19°♂04'18	18.21692 AU				
direct	1567 Aug 17 j 04:22	17°♂02'41		conjunction	1575 Jan 01 j 11:30	20°♂43'42	0°-27'-40
				minimum elong	1575 Jan 01 j 11:30	20°♂43'42	0°27'42
conjunction	1567 Dec 03 j 19:42	21°♂13'18	0°-7'-15	max. Earth dist.	1575 Jan 02 j 06:34	20°♂46'30	20.67249 AU
minimum elong	1567 Dec 03 j 19:42	21°♂13'18	0°07'16	retrograde	1575 Apr 19 j 18:49	24°♂47'32	
behind sun begin	1567 Dec 03 j 13:41	21°♂12'25		opposition	1575 Jul 06 j 07:22	22°♂48'34	0°-31'-58
behind sun end	1567 Dec 04 j 01:44	21°♂14'11		min. Earth dist.	1575 Jul 05 j 12:54	22°♂50'25	18.69914 AU
max. Earth dist.	1567 Dec 04 j 04:49	21°♂14'40	20.25093 AU	direct	1575 Sep 21 j 02:59	20°♂50'17	
retrograde	1568 Mar 20 j 08:38	25°♂22'01					
opposition	1568 Jun 04 j 17:35	23°♂22'38	0°-9'-47	conjunction	1576 Jan 05 j 18:09	24°♂50'14	0°-30'-3
min. Earth dist.	1568 Jun 04 j 07:05	23°♂23'43	18.28422 AU	minimum elong	1576 Jan 05 j 18:08	24°♂50'14	0°30'04
direct	1568 Aug 20 j 22:28	21°♂22'14		max. Earth dist.	1576 Jan 06 j 13:23	24°♂53'03	20.72507 AU
				retrograde	1576 Apr 23 j 05:51	28°♂53'34	
conjunction	1568 Dec 07 j 07:02	25°♂31'24	0°-10'-28	opposition	1576 Jul 09 j 20:04	26°♂54'39	0°-34'-30
minimum elong	1568 Dec 07 j 07:02	25°♂31'24	0°10'28	min. Earth dist.	1576 Jul 09 j 00:01	26°♂56'40	18.75077 AU
behind sun begin	1568 Dec 07 j 01:51	25°♂30'39		direct	1576 Sep 24 j 13:02	24°♂56'39	
behind sun end	1568 Dec 07 j 12:12	25°♂32'10					
max. Earth dist.	1568 Dec 07 j 18:10	25°♂33'04	20.31736 AU	conjunction	1577 Jan 09 j 00:30	28°♂55'34	0°-32'-16
retrograde	1569 Mar 24 j 21:24	29°♂39'20		minimum elong	1577 Jan 09 j 00:30	28°♂55'34	0°32'17
opposition	1569 Jun 09 j 11:31	27°♂40'05	0°-13'-19	max. Earth dist.	1577 Jan 09 j 21:51	28°♂58'41	20.77548 AU
min. Earth dist.	1569 Jun 09 j 00:41	27°♂41'11	18.34978 AU		1577 Jan 27 j 12:46	0°≈	
direct	1569 Aug 25 j 15:10	25°♂40'03		retrograde	1577 Apr 27 j 14:40	2°≈58'26	
				min. Earth dist.	1577 Jul 13 j 11:51	1°≈01'40	18.79996 AU
conjunction	1569 Dec 11 j 17:25	29°♂47'47	0°-13'-37	opposition	1577 Jul 14 j 08:25	0°≈59'37	0°-36'-51
minimum elong	1569 Dec 11 j 17:25	29°♂47'47	0°13'38		1577 Aug 09 j 08:52	30°♂♂	
behind sun begin	1569 Dec 11 j 13:44	29°♂47'14		direct	1577 Sep 28 j 23:23	29°♂01'55	
behind sun end	1569 Dec 11 j 21:07	29°♂48'19			1577 Nov 16 j 07:32	0°≈	
max. Earth dist.	1569 Dec 12 j 05:02	29°♂49'31	20.38193 AU				
	1569 Dec 15 j 02:43	0°♂		conjunction	1578 Jan 13 j 06:13	2°≈59'50	0°-34'-19
retrograde	1570 Mar 29 j 11:44	3°♂54'58		minimum elong	1578 Jan 13 j 06:13	2°≈59'50	0°34'19

max. Earth dist.	1578 Jan 14 j 03:30	3° <del>02</del> '57	20.82338 AU	conjunction	1586 Feb 23 23:51	5° <del>06</del> '43	0°-43'-47
retrograde	1578 May 02 j 01:07	7° <del>02</del> '20		minimum elong	1586 Feb 23 23:51	5° <del>06</del> '43	0°43'48
opposition	1578 Jul 18 j 20:13	5° <del>03</del> '34	0°-39'-1	max. Earth dist.	1586 Feb 24 22:28	5° <del>09</del> '57	21.05258 AU
min. Earth dist.	1578 Jul 17 j 22:29	5° <del>05</del> '44	18.84646 AU	retrograde	1586 Jun 13 23:38	9° <del>07</del> '45	
direct	1578 Oct 03 j 07:48	3° <del>06</del> '08		min. Earth dist.	1586 Aug 30 04:25	7° <del>10</del> '56	19.05682 AU
				opposition	1586 Aug 31 02:11	7° <del>08</del> '45	0°-48'-32
				direct	1586 Nov 14 19:00	5° <del>12</del> '24	
conjunction	1579 Jan 17 j 11:58	7° <del>03</del> '11	0°-36'-11				
minimum elong	1579 Jan 17 j 11:58	7° <del>03</del> '11	0°36'11				
max. Earth dist.	1579 Jan 18 j 11:03	7° <del>06</del> '32	20.86815 AU	conjunction	1587 Feb 28 04:54	9° <del>04</del> '54	0°-44'-2
retrograde	1579 May 06 j 09:47	11° <del>05</del> '19		minimum elong	1587 Feb 28 04:54	9° <del>04</del> '54	0°44'03
min. Earth dist.	1579 Jul 22 j 09:26	9° <del>08</del> '49	18.88947 AU	max. Earth dist.	1587 Mar 01 04:31	9° <del>08</del> '17	21.05913 AU
opposition	1579 Jul 23 j 07:23	9° <del>06</del> '38	0°-40'-58	retrograde	1587 Jun 18 07:29	13° <del>05</del> '57	
direct	1579 Oct 07 j 16:58	7° <del>09</del> '29		opposition	1587 Sep 04 09:56	11° <del>06</del> '50	0°-48'-41
				min. Earth dist.	1587 Sep 03 12:15	11° <del>09</del> '01	19.06132 AU
				direct	1587 Nov 19 01:25	9° <del>10</del> '29	
conjunction	1580 Jan 21 j 17:21	11° <del>05</del> '42	0°-37'-52				
minimum elong	1580 Jan 21 j 17:21	11° <del>05</del> '42	0°37'53				
max. Earth dist.	1580 Jan 22 j 15:52	11° <del>08</del> '58	20.90927 AU	conjunction	1588 Mar 03 09:51	13° <del>02</del> '47	0°-44'-4
	1580 Apr 22 j 07:37	15° <del>00</del> '		minimum elong	1588 Mar 03 09:51	13° <del>02</del> '47	0°44'04
retrograde	1580 May 09 j 20:03	15° <del>07</del> '33		max. Earth dist.	1588 Mar 04 08:13	13° <del>05</del> '59	21.06175 AU
	1580 May 27 j 13:52	15° <del>00</del> '		retrograde	1588 Jun 21 15:33	17° <del>03</del> '57	
opposition	1580 Jul 26 j 18:10	13° <del>08</del> '55	0°-42'-43	opposition	1588 Sep 07 17:38	15° <del>04</del> '43	0°-48'-37
min. Earth dist.	1580 Jul 25 j 19:38	13° <del>11</del> '10	18.92860 AU	min. Earth dist.	1588 Sep 06 20:23	15° <del>06</del> '51	19.06212 AU
direct	1580 Oct 11 j 00:43	11° <del>12</del> '00		direct	1588 Nov 22 05:54	13° <del>08</del> '20	
	1581 Jan 22 j 19:06	15° <del>00</del> '					
				conjunction	1589 Mar 07 14:58	17° <del>00</del> '33	0°-43'-53
conjunction	1581 Jan 24 j 22:39	15° <del>07</del> '28	0°-39'-22	minimum elong	1589 Mar 07 14:58	17° <del>00</del> '33	0°43'55
minimum elong	1581 Jan 24 j 22:38	15° <del>07</del> '28	0°39'22	max. Earth dist.	1589 Mar 08 14:17	17° <del>03</del> '53	21.06063 AU
max. Earth dist.	1581 Jan 25 j 22:34	15° <del>10</del> '56	20.94604 AU	retrograde	1589 Jun 25 23:35	21° <del>01</del> '53	
retrograde	1581 May 14 j 04:24	19° <del>09</del> '05		min. Earth dist.	1589 Sep 11 03:49	19° <del>04</del> '42	19.05914 AU
min. Earth dist.	1581 Jul 30 j 06:01	17° <del>12</del> '44	18.96301 AU	opposition	1589 Sep 12 01:05	19° <del>02</del> '34	0°-48'-18
opposition	1581 Jul 31 j 04:34	17° <del>10</del> '29	0°-44'-15	direct	1589 Nov 26 12:06	17° <del>06</del> '12	
direct	1581 Oct 15 j 08:42	15° <del>13</del> '48					
				conjunction	1590 Mar 11 20:18	20° <del>58</del> '25	0°-43'-30
conjunction	1582 Jan 29 j 03:49	19° <del>08</del> '35	0°-40'-40	minimum elong	1590 Mar 11 20:18	20° <del>58</del> '25	0°43'31
minimum elong	1582 Jan 29 j 03:49	19° <del>08</del> '35	0°40'41	max. Earth dist.	1590 Mar 12 18:11	21° <del>01</del> '32	21.05595 AU
max. Earth dist.	1582 Jan 30 j 02:47	19° <del>11</del> '54	20.97802 AU	retrograde	1590 Jun 30 08:18	25° <del>00</del> '00	
retrograde	1582 May 18 j 14:21	23° <del>10</del> '01		min. Earth dist.	1590 Sep 15 11:49	23° <del>02</del> '39	19.05270 AU
opposition	1582 Aug 04 j 14:33	21° <del>11</del> '24	0°-45'-34	opposition	1590 Sep 16 08:20	23° <del>00</del> '35	0°-47'-45
min. Earth dist.	1582 Aug 03 j 15:53	21° <del>13</del> '39	18.99249 AU	direct	1590 Nov 30 16:04	21° <del>04</del> '11	
direct	1582 Oct 29 16:14	19° <del>14</del> '51					
				conjunction	1591 Mar 16 02:07	24° <del>56</del> '32	0°-42'-55
conjunction	1583 Feb 12 09:03	23° <del>09</del> '03	0°-41'-45	minimum elong	1591 Mar 16 02:07	24° <del>56</del> '32	0°42'57
minimum elong	1583 Feb 12 09:03	23° <del>09</del> '03	0°41'46	max. Earth dist.	1591 Mar 17 00:38	24° <del>59</del> '45	21.04762 AU
max. Earth dist.	1583 Feb 13 09:02	23° <del>12</del> '30	21.00469 AU	retrograde	1591 Jul 04 16:39	28° <del>58</del> '25	
retrograde	1583 Jun 01 22:34	27° <del>10</del> '18		opposition	1591 Sep 20 15:28	26° <del>58</del> '57	0°-46'-59
min. Earth dist.	1583 Aug 18 01:37	25° <del>13</del> '54	19.01635 AU	min. Earth dist.	1591 Sep 19 19:08	27° <del>01</del> '00	19.04238 AU
opposition	1583 Aug 19 00:05	25° <del>11</del> '39	0°-46'-40	direct	1591 Dec 04 21:58	25° <del>02</del> '33	
direct	1583 Nov 02 23:24	23° <del>15</del> '14					
				conjunction	1592 Mar 19 08:04	28° <del>55</del> '06	0°-42'-7
conjunction	1584 Feb 16 14:04	27° <del>08</del> '52	0°-42'-39	minimum elong	1592 Mar 19 08:04	28° <del>55</del> '06	0°42'08
minimum elong	1584 Feb 16 14:04	27° <del>08</del> '52	0°42'40	max. Earth dist.	1592 Mar 20 04:52	28° <del>58</del> '04	21.03545 AU
max. Earth dist.	1584 Feb 17 12:47	27° <del>12</del> '09	21.02583 AU		1592 Apr 07 11:24	0° <del>00</del> '	
	1584 Apr 11 14:28	0° <del>00</del> '		retrograde	1592 Jul 08 02:12	2° <del>57</del> '21	
retrograde	1584 Jun 05 07:27	1° <del>10</del> '01		opposition	1592 Sep 23 22:35	0° <del>57</del> '49	0°-46'-00
	1584 Aug 01 09:28	30° <del>00</del> '		min. Earth dist.	1592 Sep 23 03:21	0° <del>59</del> '46	19.02824 AU
min. Earth dist.	1584 Aug 21 10:55	29° <del>13</del> '29	19.03481 AU		1592 Oct 18 21:32	30° <del>00</del> '	
opposition	1584 Aug 22 09:07	29° <del>11</del> '16	0°-47'-31	direct	1592 Dec 08 02:07	29° <del>01</del> '24	
direct	1584 Nov 06 06:21	27° <del>14</del> '53			1593 Jan 25 13:21	0° <del>00</del> '	
	1585 Jan 30 19:22	0° <del>00</del> '					
				conjunction	1593 Mar 23 14:39	2° <del>54</del> '16	0°-41'-7
conjunction	1585 Feb 19 19:07	1° <del>08</del> '05	0°-43'-19	minimum elong	1593 Mar 23 14:39	2° <del>54</del> '16	0°41'08
minimum elong	1585 Feb 19 19:06	1° <del>08</del> '05	0°43'20	max. Earth dist.	1593 Mar 24 11:50	2° <del>57</del> '18	21.01925 AU
max. Earth dist.	1585 Feb 20 18:49	1° <del>11</del> '29	21.04162 AU	retrograde	1593 Jul 12 10:44	6° <del>56</del> '56	
retrograde	1585 Jun 09 15:25	5° <del>09</del> '08		min. Earth dist.	1593 Sep 27 10:54	4° <del>59</del> '15	19.00982 AU
opposition	1585 Aug 26 17:50	3° <del>10</del> '17	0°-48'-9	opposition	1593 Sep 28 05:40	4° <del>57</del> '21	0°-44'-47
min. Earth dist.	1585 Aug 25 19:43	3° <del>12</del> '29	19.04805 AU	direct	1593 Dec 12 07:46	3° <del>00</del> '53	
direct	1585 Nov 10 13:13	1° <del>13</del> '56					

conjunction	1594 Mar 27 21:36	6°Υ54'09	0°-39'-55
minimum elong	1594 Mar 27 21:36	6°Υ54'09	0°39'56
max. Earth dist.	1594 Mar 28 16:41	6°Υ56'53	20.99867 AU
retrograde	1594 Jul 16 20:53	10°Υ57'18	
opposition	1594 Oct 02 12:55	8°Υ57'38	0°-43'-21
min. Earth dist.	1594 Oct 01 19:46	8°Υ59'22	18.98688 AU
direct	1594 Dec 16 12:40	7°Υ01'05	
conjunction	1595 Apr 01 05:23	10°Υ54'51	0°-38'-31
minimum elong	1595 Apr 01 05:23	10°Υ54'51	0°38'31
max. Earth dist.	1595 Apr 02 00:19	10°Υ57'33	20.97322 AU
retrograde	1595 Jul 21 05:55	14°Υ58'29	
opposition	1595 Oct 06 20:02	12°Υ58'44	0°-41'-41
min. Earth dist.	1595 Oct 06 03:39	13°Υ00'24	18.95880 AU
direct	1595 Dec 20 18:37	11°Υ02'03	
conjunction	1596 Apr 04 13:32	14°Υ56'22	0°-36'-55
minimum elong	1596 Apr 04 13:32	14°Υ56'22	0°36'56
max. Earth dist.	1596 Apr 05 05:53	14°Υ58'42	20.94263 AU
retrograde	1596 Jul 24 15:45	19°Υ00'33	
opposition	1596 Oct 10 03:32	17°Υ00'39	0°-39'-49
min. Earth dist.	1596 Oct 09 13:04	17°Υ02'07	18.92562 AU
direct	1596 Dec 24 00:17	15°Υ03'47	
conjunction	1597 Apr 08 22:15	18°Υ58'43	0°-35'-8
minimum elong	1597 Apr 08 22:16	18°Υ58'43	0°35'08
max. Earth dist.	1597 Apr 09 14:19	19°Υ01'01	20.90691 AU
retrograde	1597 Jul 29 01:50	23°Υ03'27	
opposition	1597 Oct 14 11:03	21°Υ03'23	0°-37'-45
min. Earth dist.	1597 Oct 13 21:22	21°Υ04'47	18.88732 AU
direct	1597 Dec 28 07:10	19°Υ06'18	
conjunction	1598 Apr 13 07:32	23°Υ01'54	0°-33'-10
minimum elong	1598 Apr 13 07:32	23°Υ01'54	0°33'11
max. Earth dist.	1598 Apr 13 20:56	23°Υ03'49	20.86640 AU
retrograde	1598 Aug 02 11:20	27°Υ07'12	
opposition	1598 Oct 18 18:38	25°Υ06'56	0°-35'-29
min. Earth dist.	1598 Oct 18 07:03	25°Υ08'07	18.84462 AU
direct	1599 Jan 01 13:08	23°Υ09'34	
conjunction	1599 Apr 17 17:33	27°Υ05'56	0°-31'-1
minimum elong	1599 Apr 17 17:33	27°Υ05'56	0°31'02
max. Earth dist.	1599 Apr 18 06:36	27°Υ07'48	20.82171 AU
retrograde	1599 Jun 12 15:22	0°♄	
	1599 Aug 06 22:19	1°♄11'49	
opposition	1599 Oct 02 19:11	30°♄	
	1599 Oct 23 02:19	29°Υ11'21	0°-33'-1
min. Earth dist.	1599 Oct 22 15:26	29°Υ12'28	18.79799 AU
direct	1600 Jan 05 20:48	27°Υ13'42	
direct	1600 Mar 31 08:52	0°♄	
conjunction	1600 Apr 21 03:50	1°♄10'53	0°-28'-42
minimum elong	1600 Apr 21 03:50	1°♄10'53	0°28'43
max. Earth dist.	1600 Apr 21 14:21	1°♄12'23	20.77348 AU
retrograde	1600 Aug 10 08:13	5°♄17'26	
opposition	1600 Oct 26 10:20	3°♄16'45	0°-30'-23
min. Earth dist.	1600 Oct 26 01:26	3°♄17'40	18.74828 AU
direct	1601 Jan 09 03:04	1°♄18'45	



direct	1600 Jan 05 20:48	27° $\Upsilon$ 13'42		min. Earth dist.	1606 Nov 20 16:29	28° $\mathcal{B}$ 16'57	18.40917 AU
	1600 Mar 31 08:52	0° $\mathcal{B}$		direct	1607 Feb 03 05:43	26° $\mathcal{B}$ 17'03	
					1607 May 15 17:58	0° $\Pi$	
conjunction	1600 Apr 21 03:50	1° $\mathcal{B}$ 10'53	0°-28'-42				
minimum elong	1600 Apr 21 03:50	1° $\mathcal{B}$ 10'53	0°28'43	conjunction	1607 May 22 02:34	0° $\Pi$ 22'21	0°-8'-51
max. Earth dist.	1600 Apr 21 14:21	1° $\mathcal{B}$ 12'23	20.77348 AU	minimum elong	1607 May 22 02:33	0° $\Pi$ 22'21	0°08'52
retrograde	1600 Aug 10 08:13	5° $\mathcal{B}$ 17'26		behind sun begin	1607 May 21 20:47	0° $\Pi$ 21'32	
opposition	1600 Oct 26 10:20	3° $\mathcal{B}$ 16'45	0°-30'-23	behind sun end	1607 May 22 08:19	0° $\Pi$ 23'11	
min. Earth dist.	1600 Oct 26 01:26	3° $\mathcal{B}$ 17'40	18.74828 AU	max. Earth dist.	1607 May 22 03:07	0° $\Pi$ 22'26	20.37877 AU
direct	1601 Jan 09 03:04	1° $\mathcal{B}$ 18'45		retrograde	1607 Sep 10 06:49	4° $\Pi$ 34'27	
				opposition	1607 Nov 25 04:02	2° $\Pi$ 32'52	0°-7'-58
conjunction	1601 Apr 25 15:03	5° $\mathcal{B}$ 16'52	0°-26'-15	min. Earth dist.	1607 Nov 25 04:04	2° $\Pi$ 32'52	18.34752 AU
minimum elong	1601 Apr 25 15:03	5° $\mathcal{B}$ 16'52	0°26'16	direct	1608 Feb 07 17:39	0° $\Pi$ 32'45	
max. Earth dist.	1601 Apr 26 01:18	5° $\mathcal{B}$ 18'20	20.72244 AU				
retrograde	1601 Aug 14 20:12	9° $\mathcal{B}$ 24'05		conjunction	1608 May 25 19:29	4° $\Pi$ 39'28	0°-5'-38
opposition	1601 Oct 30 18:26	7° $\mathcal{B}$ 23'13	0°-27'-35	minimum elong	1608 May 25 19:30	4° $\Pi$ 39'28	0°05'40
min. Earth dist.	1601 Oct 30 10:02	7° $\mathcal{B}$ 24'05	18.69597 AU	behind sun begin	1608 May 25 13:01	4° $\Pi$ 38'32	
direct	1602 Jan 13 11:17	5° $\mathcal{B}$ 24'55		behind sun end	1608 May 26 01:58	4° $\Pi$ 40'24	
				max. Earth dist.	1608 May 25 17:15	4° $\Pi$ 39'10	20.31624 AU
conjunction	1602 Apr 30 02:49	9° $\mathcal{B}$ 24'01	0°-23'-38	retrograde	1608 Sep 13 21:34	8° $\Pi$ 52'28	
minimum elong	1602 Apr 30 02:49	9° $\mathcal{B}$ 24'01	0°23'39	opposition	1608 Nov 28 15:43	6° $\Pi$ 50'48	0°-4'-20
max. Earth dist.	1602 Apr 30 10:29	9° $\mathcal{B}$ 25'07	20.66908 AU	min. Earth dist.	1608 Nov 28 18:26	6° $\Pi$ 50'30	18.28416 AU
retrograde	1602 Aug 19 07:24	13° $\mathcal{B}$ 31'57		direct	1609 Feb 11 03:47	4° $\Pi$ 50'20	
opposition	1602 Nov 04 03:00	11° $\mathcal{B}$ 30'54	0°-24'-38				
min. Earth dist.	1602 Nov 03 20:40	11° $\mathcal{B}$ 31'33	18.64163 AU	conjunction	1609 May 30 13:41	8° $\Pi$ 58'32	0°-2'-20
direct	1603 Jan 17 18:12	9° $\mathcal{B}$ 32'16		minimum elong	1609 May 30 13:41	8° $\Pi$ 58'32	0°02'21
				behind sun begin	1609 May 30 06:56	8° $\Pi$ 57'33	
conjunction	1603 May 04 15:31	13° $\mathcal{B}$ 32'28	0°-20'-54	behind sun end	1609 May 30 20:26	8° $\Pi$ 59'30	
minimum elong	1603 May 04 15:31	13° $\mathcal{B}$ 32'28	0°20'55	max. Earth dist.	1609 May 30 10:05	8° $\Pi$ 58'03	20.25202 AU
max. Earth dist.	1603 May 04 22:47	13° $\mathcal{B}$ 33'30	20.61382 AU	retrograde	1609 Sep 18 15:58	13° $\Pi$ 12'24	
	1603 May 30 07:50	15° $\mathcal{B}$		opposition	1609 Dec 03 03:43	11° $\Pi$ 10'37	0°00'-40
retrograde	1603 Aug 23 20:39	17° $\mathcal{B}$ 41'09		min. Earth dist.	1609 Dec 03 07:17	11° $\Pi$ 10'14	18.21905 AU
opposition	1603 Nov 08 11:43	15° $\mathcal{B}$ 39'57	0°-21'-32	asc. node	1610 Feb 09 04:58	9° $\Pi$ 10'56	
min. Earth dist.	1603 Nov 08 05:50	15° $\mathcal{B}$ 40'34	18.58548 AU	direct	1610 Feb 15 17:24	9° $\Pi$ 09'48	
	1603 Nov 24 18:11	15° $\mathcal{R}\mathcal{B}$					
direct	1604 Jan 22 03:09	13° $\mathcal{B}$ 41'01		conjunction	1610 Jun 04 08:43	13° $\Pi$ 19'28	0°01'05
	1604 Mar 18 09:56	15° $\mathcal{B}$		minimum elong	1610 Jun 04 08:42	13° $\Pi$ 19'28	0°01'04
				behind sun begin	1610 Jun 04 01:57	13° $\Pi$ 18'30	
conjunction	1604 May 08 04:50	17° $\mathcal{B}$ 42'22	0°-18'-3	behind sun end	1610 Jun 04 15:28	13° $\Pi$ 20'27	
minimum elong	1604 May 08 04:50	17° $\mathcal{B}$ 42'22	0°18'03	max. Earth dist.	1610 Jun 04 02:14	13° $\Pi$ 18'33	20.18608 AU
max. Earth dist.	1604 May 08 09:30	17° $\mathcal{B}$ 43'02	20.55701 AU	retrograde	1610 Sep 23 07:45	17° $\Pi$ 34'12	
retrograde	1604 Aug 27 09:12	21° $\mathcal{B}$ 51'52		opposition	1610 Dec 07 16:34	15° $\Pi$ 32'18	0°03'02
opposition	1604 Nov 11 21:08	19° $\mathcal{B}$ 50'32	0°-18'-18	min. Earth dist.	1610 Dec 07 22:55	15° $\Pi$ 31'38	18.15246 AU
min. Earth dist.	1604 Nov 11 17:22	19° $\mathcal{B}$ 50'55	18.52804 AU	direct	1611 Feb 20 05:27	13° $\Pi$ 31'04	
direct	1605 Jan 25 10:49	17° $\mathcal{B}$ 51'18					
				conjunction	1611 Jun 09 04:36	17° $\Pi$ 42'15	0°04'28
conjunction	1605 May 12 19:04	21° $\mathcal{B}$ 53'53	0°-15'-4	minimum elong	1611 Jun 09 04:35	17° $\Pi$ 42'15	0°04'28
minimum elong	1605 May 12 19:05	21° $\mathcal{B}$ 53'53	0°15'06	behind sun begin	1611 Jun 08 21:57	17° $\Pi$ 41'17	
behind sun begin	1605 May 12 17:00	21° $\mathcal{B}$ 53'35		behind sun end	1611 Jun 09 11:13	17° $\Pi$ 43'12	
behind sun end	1605 May 12 21:09	21° $\mathcal{B}$ 54'11		max. Earth dist.	1611 Jun 08 20:34	17° $\Pi$ 41'05	20.11901 AU
max. Earth dist.	1605 May 12 23:16	21° $\mathcal{B}$ 54'29	20.49898 AU	retrograde	1611 Sep 28 02:49	21° $\Pi$ 57'48	
retrograde	1605 Sep 01 00:12	26° $\mathcal{B}$ 04'14		opposition	1611 Dec 12 05:48	19° $\Pi$ 55'46	0°06'45
opposition	1605 Nov 16 06:53	24° $\mathcal{B}$ 02'48	0°-14'-57	min. Earth dist.	1611 Dec 12 12:50	19° $\Pi$ 55'01	18.08502 AU
min. Earth dist.	1605 Nov 16 03:38	24° $\mathcal{B}$ 03'08	18.46925 AU	direct	1612 Feb 24 20:35	17° $\Pi$ 54'08	
direct	1606 Jan 29 21:05	22° $\mathcal{B}$ 03'16					
				conjunction	1612 Jun 13 01:13	22° $\Pi$ 06'48	0°07'47
conjunction	1606 May 17 10:16	26° $\mathcal{B}$ 07'10	0°-12'00	minimum elong	1612 Jun 13 01:12	22° $\Pi$ 06'48	0°07'47
minimum elong	1606 May 17 10:16	26° $\mathcal{B}$ 07'10	0°12'01	behind sun begin	1612 Jun 12 19:08	22° $\Pi$ 05'55	
behind sun begin	1606 May 17 05:44	26° $\mathcal{B}$ 06'32		behind sun end	1612 Jun 13 07:17	22° $\Pi$ 07'41	
behind sun end	1606 May 17 14:48	26° $\mathcal{B}$ 07'49		max. Earth dist.	1612 Jun 12 14:53	22° $\Pi$ 05'17	20.05139 AU
max. Earth dist.	1606 May 17 11:45	26° $\mathcal{B}$ 07'23	20.43957 AU	retrograde	1612 Oct 01 19:35	26° $\Pi$ 23'11	
	1606 Aug 09 15:50	0° $\Pi$		opposition	1612 Dec 15 19:48	24° $\Pi$ 21'00	0°10'27
retrograde	1606 Sep 05 13:57	0° $\Pi$ 18'23		min. Earth dist.	1612 Dec 16 05:23	24° $\Pi$ 19'58	18.01754 AU
	1606 Oct 02 18:28	30° $\mathcal{R}\mathcal{B}$		direct	1613 Feb 28 10:25	22° $\Pi$ 18'54	
opposition	1606 Nov 20 17:12	28° $\mathcal{B}$ 16'52	0°-11'-30				

conjunction	1613 Jun 17 22:38	26°II33'06	0°11'06	retrograde	1620 Nov 07 14:58	2°Ω47'10	
minimum elong	1613 Jun 17 22:38	26°II33'06	0°11'05	opposition	1621 Jan 20 11:29	0°Ω44'31	0°36'43
behind sun begin	1613 Jun 17 17:40	26°II32'22		min. Earth dist.	1621 Jan 21 05:30	0°Ω42'33	17.55602 AU
behind sun end	1613 Jun 18 03:37	26°II33'50			1621 Feb 06 20:10	30°R☿	
max. Earth dist.	1613 Jun 17 10:45	26°II31'20	19.98422 AU	direct	1621 Apr 05 17:10	28°☿39'38	
	1613 Aug 23 07:18	0°☿			1621 May 31 22:50	0°Ω	
retrograde	1613 Oct 06 15:18	0°☿50'16		max. Earth dist.	1621 Jul 25 05:20	3°Ω01'47	19.53411 AU
	1613 Nov 20 13:24	30°RII					
opposition	1613 Dec 20 10:18	28°II47'56	0°14'07	conjunction	1621 Jul 26 03:57	3°Ω05'16	0°34'08
min. Earth dist.	1613 Dec 20 20:23	28°II46'51	17.95076 AU	minimum elong	1621 Jul 26 03:57	3°Ω05'16	0°34'09
direct	1614 Mar 05 03:13	26°II45'25		retrograde	1621 Nov 12 14:53	7°Ω27'40	
	1614 Jun 05 18:45	0°☿		opposition	1622 Jan 25 07:45	5°Ω25'02	0°39'14
				min. Earth dist.	1622 Jan 26 02:30	5°Ω22'59	17.51342 AU
conjunction	1614 Jun 22 20:55	1°☿01'08	0°14'21	direct	1622 Apr 10 15:54	3°Ω19'54	
minimum elong	1614 Jun 22 20:55	1°☿01'08	0°14'22	max. Earth dist.	1622 Jul 30 09:00	7°Ω43'16	19.49296 AU
behind sun begin	1614 Jun 22 18:03	1°☿00'42					
behind sun end	1614 Jun 22 23:47	1°☿01'33		conjunction	1622 Jul 31 07:32	7°Ω46'44	0°36'17
max. Earth dist.	1614 Jun 22 07:19	0°☿59'05	19.91794 AU	minimum elong	1622 Jul 31 07:32	7°Ω46'44	0°36'17
retrograde	1614 Oct 11 08:52	5°☿19'03		retrograde	1622 Nov 17 14:16	12°Ω09'33	
opposition	1614 Dec 25 01:30	3°☿16'35	0°17'43	opposition	1623 Jan 30 04:45	10°Ω06'58	0°41'30
min. Earth dist.	1614 Dec 25 13:52	3°☿15'15	17.88537 AU	min. Earth dist.	1623 Jan 31 00:27	10°Ω04'48	17.47388 AU
direct	1615 Mar 09 19:07	1°☿13'38		direct	1623 Apr 15 14:41	8°Ω01'36	
				max. Earth dist.	1623 Aug 04 10:40	12°Ω25'41	19.45507 AU
conjunction	1615 Jun 27 19:52	5°☿30'51	0°17'33				
minimum elong	1615 Jun 27 19:52	5°☿30'51	0°17'33	conjunction	1623 Aug 05 11:18	12°Ω29'30	0°38'11
max. Earth dist.	1615 Jun 27 04:37	5°☿28'33	19.85358 AU	minimum elong	1623 Aug 05 11:18	12°Ω29'30	0°38'11
retrograde	1615 Oct 16 05:09	9°☿49'31			1623 Sep 17 07:04	15°Ω	
opposition	1615 Dec 29 17:20	7°☿46'56	0°21'14	retrograde	1623 Nov 22 14:18	16°Ω52'40	
min. Earth dist.	1615 Dec 30 05:58	7°☿45'34	17.82223 AU		1624 Jan 11 07:35	15°RΩ	
direct	1616 Mar 13 13:27	5°☿43'35		opposition	1624 Feb 04 02:25	14°Ω50'05	0°43'30
				min. Earth dist.	1624 Feb 04 22:56	14°Ω47'50	17.43781 AU
conjunction	1616 Jul 01 19:25	10°☿02'16	0°20'39	direct	1624 Apr 19 14:33	12°Ω44'29	
minimum elong	1616 Jul 01 19:25	10°☿02'16	0°20'40		1624 Jul 03 07:26	15°Ω	
max. Earth dist.	1616 Jul 01 03:14	9°☿59'50	19.79164 AU				
retrograde	1616 Oct 20 00:10	14°☿21'40		conjunction	1624 Aug 09 15:22	17°Ω13'21	0°39'51
opposition	1617 Jan 02 10:02	12°☿18'59	0°24'38	minimum elong	1624 Aug 09 15:22	17°Ω13'21	0°39'51
min. Earth dist.	1617 Jan 03 00:29	12°☿17'25	17.76186 AU	max. Earth dist.	1624 Aug 08 15:07	17°Ω09'35	19.42066 AU
direct	1617 Mar 18 07:34	10°☿15'16		retrograde	1624 Nov 26 14:18	21°Ω36'47	
				opposition	1625 Feb 08 00:37	19°Ω34'12	0°45'13
conjunction	1617 Jul 06 19:47	14°☿35'25	0°23'39	min. Earth dist.	1625 Feb 08 21:30	19°Ω31'55	17.40517 AU
minimum elong	1617 Jul 06 19:47	14°☿35'25	0°23'39	direct	1625 Apr 24 15:26	17°Ω28'24	
max. Earth dist.	1617 Jul 06 01:48	14°☿32'41	19.73293 AU				
retrograde	1617 Oct 24 21:13	18°☿55'29		conjunction	1625 Aug 14 19:37	21°Ω58'05	0°41'14
opposition	1618 Jan 07 03:09	16°☿52'45	0°27'55	minimum elong	1625 Aug 14 19:37	21°Ω58'05	0°41'13
min. Earth dist.	1618 Jan 07 17:52	16°☿51'10	17.70492 AU	max. Earth dist.	1625 Aug 13 17:44	21°Ω54'03	19.38996 AU
direct	1618 Mar 23 03:26	14°☿48'41		retrograde	1625 Dec 01 13:46	26°Ω21'43	
				opposition	1626 Feb 12 23:19	24°Ω19'08	0°46'37
conjunction	1618 Jul 11 21:00	19°☿10'18	0°26'31	min. Earth dist.	1626 Feb 13 21:07	24°Ω16'45	17.37663 AU
minimum elong	1618 Jul 11 21:00	19°☿10'18	0°26'30	direct	1626 Apr 29 16:08	22°Ω13'07	
max. Earth dist.	1618 Jul 11 02:33	19°☿07'29	19.67767 AU	max. Earth dist.	1626 Aug 18 22:45	26°Ω39'35	19.36359 AU
retrograde	1618 Oct 29 17:59	23°☿31'01					
opposition	1619 Jan 11 21:17	21°☿28'17	0°31'02	conjunction	1626 Aug 20 00:01	26°Ω43'32	0°42'21
min. Earth dist.	1619 Jan 12 13:32	21°☿26'31	17.65156 AU	minimum elong	1626 Aug 20 00:01	26°Ω43'32	0°42'21
direct	1619 Mar 27 23:00	19°☿23'55			1626 Oct 17 14:34	0°R☿	
				retrograde	1626 Dec 06 14:18	1°R☿07'16	
conjunction	1619 Jul 16 22:34	23°☿46'55	0°29'14		1627 Jan 27 01:56	30°RΩ	
minimum elong	1619 Jul 16 22:34	23°☿46'55	0°29'14	opposition	1627 Feb 17 22:33	29°Ω04'41	0°47'42
max. Earth dist.	1619 Jul 16 02:12	23°☿43'48	19.62623 AU	min. Earth dist.	1627 Feb 18 19:58	29°Ω02'20	17.35252 AU
retrograde	1619 Nov 03 16:39	28°☿08'16		direct	1627 May 04 19:00	26°Ω58'30	
opposition	1620 Jan 16 16:00	26°☿05'33	0°33'58		1627 Jul 31 22:06	0°R☿	
min. Earth dist.	1620 Jan 17 08:38	26°☿03'44	17.60203 AU	max. Earth dist.	1627 Aug 24 02:12	1°R☿25'26	19.34192 AU
direct	1620 Mar 31 20:23	24°☿00'55					
max. Earth dist.	1620 Jul 20 04:38	28°☿22'09	19.57842 AU	conjunction	1627 Aug 25 04:05	1°R☿29'29	0°43'10
				minimum elong	1627 Aug 25 04:05	1°R☿29'29	0°43'10
conjunction	1620 Jul 21 01:01	28°☿25'16	0°31'47	retrograde	1627 Dec 11 13:09	5°R☿53'15	
minimum elong	1620 Jul 21 01:01	28°☿25'16	0°31'46	opposition	1628 Feb 22 22:15	3°R☿50'41	0°48'28
	1620 Aug 16 06:18	0°Ω		min. Earth dist.	1628 Feb 23 20:24	3°R☿48'15	17.33357 AU

direct	1628 May 08 20:31	1° <del>11</del> 44'20		conjunction	1636 Oct 07 04:19	14° <del>11</del> 22'53	0°37'10
max. Earth dist.	1628 Aug 28 07:04	6° <del>11</del> 11'50	19.32572 AU	minimum elong	1636 Oct 07 04:19	14° <del>11</del> 22'53	0°37'10
				retrograde	1637 Jan 22 10:43	18° <del>11</del> 43'52	
conjunction	1628 Aug 29 08:12	6° <del>11</del> 15'46	0°43'41	opposition	1637 Apr 06 06:51	16° <del>11</del> 42'24	0°40'20
minimum elong	1628 Aug 29 08:12	6° <del>11</del> 15'46	0°43'40	min. Earth dist.	1637 Apr 06 21:20	16° <del>11</del> 40'51	17.43200 AU
retrograde	1628 Dec 15 13:37	10° <del>11</del> 39'29		direct	1637 Jun 22 02:28	14° <del>11</del> 36'54	
opposition	1629 Feb 26 22:05	8° <del>11</del> 36'56	0°48'52				
min. Earth dist.	1629 Feb 27 19:12	8° <del>11</del> 34'37	17.32015 AU	conjunction	1637 Oct 12 04:34	19° <del>11</del> 06'17	0°35'07
direct	1629 May 14 00:50	6° <del>11</del> 30'29		minimum elong	1637 Oct 12 04:34	19° <del>11</del> 06'17	0°35'07
max. Earth dist.	1629 Sep 02 11:19	10° <del>11</del> 58'20	19.31525 AU	max. Earth dist.	1637 Oct 11 13:18	19° <del>11</del> 03'53	19.44939 AU
				retrograde	1638 Jan 27 09:03	23° <del>11</del> 26'36	
conjunction	1629 Sep 03 12:08	11° <del>11</del> 02'13	0°43'54	opposition	1638 Apr 11 08:19	21° <del>11</del> 25'16	0°37'54
minimum elong	1629 Sep 03 12:08	11° <del>11</del> 02'13	0°43'54	min. Earth dist.	1638 Apr 11 22:08	21° <del>11</del> 23'47	17.46805 AU
retrograde	1629 Dec 20 12:09	15° <del>11</del> 25'50		direct	1638 Jun 27 06:23	19° <del>11</del> 20'00	
opposition	1630 Mar 03 22:33	13° <del>11</del> 23'19	0°48'57				
min. Earth dist.	1630 Mar 04 20:07	13° <del>11</del> 20'57	17.31288 AU	conjunction	1638 Oct 17 03:44	23° <del>11</del> 48'27	0°32'50
direct	1630 May 19 03:03	11° <del>11</del> 16'48		minimum elong	1638 Oct 17 03:44	23° <del>11</del> 48'27	0°32'50
				max. Earth dist.	1638 Oct 16 12:45	23° <del>11</del> 46'06	19.48732 AU
conjunction	1630 Sep 08 15:38	15° <del>11</del> 48'43	0°43'49	retrograde	1639 Feb 01 06:14	28° <del>11</del> 08'04	
minimum elong	1630 Sep 08 15:38	15° <del>11</del> 48'43	0°43'48	opposition	1639 Apr 16 09:29	26° <del>11</del> 06'51	0°35'14
max. Earth dist.	1630 Sep 07 15:34	15° <del>11</del> 44'56	19.31121 AU	min. Earth dist.	1639 Apr 16 21:41	26° <del>11</del> 05'33	17.50774 AU
retrograde	1630 Dec 25 12:52	20° <del>11</del> 12'09		direct	1639 Jul 02 09:25	24° <del>11</del> 01'48	
opposition	1631 Mar 08 23:11	18° <del>11</del> 09'42	0°48'41				
min. Earth dist.	1631 Mar 09 19:01	18° <del>11</del> 07'32	17.31206 AU	conjunction	1639 Oct 22 02:18	28° <del>11</del> 29'13	0°30'21
direct	1631 May 24 08:13	16° <del>11</del> 03'12		minimum elong	1639 Oct 22 02:18	28° <del>11</del> 29'13	0°30'22
				max. Earth dist.	1639 Oct 21 13:52	28° <del>11</del> 27'17	19.52873 AU
conjunction	1631 Sep 13 18:56	20° <del>11</del> 35'10	0°43'25		1639 Nov 15 16:32	0° <del>11</del>	
minimum elong	1631 Sep 13 18:56	20° <del>11</del> 35'10	0°43'25	retrograde	1640 Feb 06 03:17	2° <del>11</del> 48'03	
max. Earth dist.	1631 Sep 12 20:11	20° <del>11</del> 31'35	19.31370 AU	opposition	1640 Apr 20 10:14	0° <del>11</del> 46'56	0°32'21
retrograde	1631 Dec 30 11:32	24° <del>11</del> 58'21		min. Earth dist.	1640 Apr 20 21:15	0° <del>11</del> 45'46	17.55069 AU
opposition	1632 Mar 13 00:08	22° <del>11</del> 56'02	0°48'05		1640 May 09 07:29	30° <del>11</del> R <del>11</del>	
min. Earth dist.	1632 Mar 13 20:09	22° <del>11</del> 53'52	17.31792 AU	direct	1640 Jul 06 13:03	28° <del>11</del> 42'08	
direct	1632 May 28 10:19	20° <del>11</del> 49'37			1640 Aug 31 06:02	0° <del>11</del>	
conjunction	1632 Sep 17 21:44	25° <del>11</del> 21'30	0°42'44	conjunction	1640 Oct 25 23:50	3° <del>11</del> 08'24	0°27'40
minimum elong	1632 Sep 17 21:44	25° <del>11</del> 21'30	0°42'44	minimum elong	1640 Oct 25 23:50	3° <del>11</del> 08'24	0°27'40
max. Earth dist.	1632 Sep 16 23:30	25° <del>11</del> 18'00	19.32290 AU	max. Earth dist.	1640 Oct 25 12:00	3° <del>11</del> 06'33	19.57342 AU
retrograde	1633 Jan 03 12:32	29° <del>11</del> 44'23		retrograde	1641 Feb 09 23:06	7° <del>11</del> 26'26	
opposition	1633 Mar 18 01:10	27° <del>11</del> 42'14	0°47'10	opposition	1641 Apr 25 10:43	5° <del>11</del> 25'23	0°29'16
min. Earth dist.	1633 Mar 18 19:19	27° <del>11</del> 40'15	17.33013 AU	min. Earth dist.	1641 Apr 25 20:18	5° <del>11</del> 24'22	17.59705 AU
direct	1633 Jun 02 14:39	25° <del>11</del> 35'56		direct	1641 Jul 11 14:47	3° <del>11</del> 20'48	
	1633 Sep 21 00:01	0° <del>11</del>					
max. Earth dist.	1633 Sep 22 03:58	0° <del>11</del> 04'24	19.33810 AU	conjunction	1641 Oct 30 20:27	7° <del>11</del> 45'50	0°24'49
				minimum elong	1641 Oct 30 20:27	7° <del>11</del> 45'50	0°24'50
conjunction	1633 Sep 23 00:17	0° <del>11</del> 07'36	0°41'46	max. Earth dist.	1641 Oct 30 11:16	7° <del>11</del> 44'25	19.62149 AU
minimum elong	1633 Sep 23 00:17	0° <del>11</del> 07'36	0°41'45	retrograde	1642 Feb 14 18:59	12° <del>11</del> 03'00	
retrograde	1634 Jan 08 11:54	4° <del>11</del> 30'07		opposition	1642 Apr 30 10:47	10° <del>11</del> 02'03	0°26'00
opposition	1634 Mar 23 02:32	2° <del>11</del> 28'09	0°45'55	min. Earth dist.	1642 Apr 30 18:27	10° <del>11</del> 01'15	17.64670 AU
min. Earth dist.	1634 Mar 23 20:47	2° <del>11</del> 26'10	17.34817 AU	direct	1642 Jul 16 17:18	7° <del>11</del> 57'44	
direct	1634 Jun 07 16:56	0° <del>11</del> 22'01					
max. Earth dist.	1634 Sep 27 06:09	4° <del>11</del> 50'11	19.35898 AU	conjunction	1642 Nov 04 15:59	12° <del>11</del> 21'26	0°21'50
				minimum elong	1642 Nov 04 16:00	12° <del>11</del> 21'26	0°21'51
conjunction	1634 Sep 28 02:11	4° <del>11</del> 53'20	0°40'30	max. Earth dist.	1642 Nov 04 08:04	12° <del>11</del> 20'12	19.67298 AU
minimum elong	1634 Sep 28 02:11	4° <del>11</del> 53'20	0°40'31		1642 Dec 20 05:17	15° <del>11</del>	
retrograde	1635 Jan 13 12:27	9° <del>11</del> 15'25		retrograde	1643 Feb 19 13:37	16° <del>11</del> 37'44	
opposition	1635 Mar 28 03:58	7° <del>11</del> 13'37	0°44'21		1643 Apr 26 05:09	15° <del>11</del> R <del>11</del>	
min. Earth dist.	1635 Mar 28 20:19	7° <del>11</del> 11'51	17.37159 AU	opposition	1643 May 05 10:25	14° <del>11</del> 36'52	0°22'36
direct	1635 Jun 12 20:24	5° <del>11</del> 07'42		min. Earth dist.	1643 May 05 16:35	14° <del>11</del> 36'13	17.70010 AU
max. Earth dist.	1635 Oct 02 09:50	9° <del>11</del> 35'43	19.38481 AU	direct	1643 Jul 21 17:03	12° <del>11</del> 32'49	
					1643 Oct 08 11:16	15° <del>11</del>	
conjunction	1635 Oct 03 03:34	9° <del>11</del> 38'31	0°38'58				
minimum elong	1635 Oct 03 03:34	9° <del>11</del> 38'31	0°38'57	conjunction	1643 Nov 09 10:36	16° <del>11</del> 55'09	0°18'45
retrograde	1636 Jan 18 11:39	14° <del>11</del> 00'04		minimum elong	1643 Nov 09 10:36	16° <del>11</del> 55'09	0°18'44
opposition	1636 Apr 01 05:33	11° <del>11</del> 58'27	0°42'29	max. Earth dist.	1643 Nov 09 05:18	16° <del>11</del> 54'20	19.72824 AU
min. Earth dist.	1636 Apr 01 21:43	11° <del>11</del> 56'43	17.39966 AU	retrograde	1644 Feb 24 08:44	21° <del>11</del> 10'34	
direct	1636 Jun 16 23:16	9° <del>11</del> 52'44		opposition	1644 May 09 09:26	19° <del>11</del> 09'50	0°19'05
max. Earth dist.	1636 Oct 06 10:39	14° <del>11</del> 20'07	19.41511 AU	min. Earth dist.	1644 May 09 13:04	19° <del>11</del> 09'27	17.75705 AU

direct	1644 Jul 25 17:49	17° <del>M</del> 06'07		minimum elong	1650 Dec 09 20:28	18° <del>2</del> 02'23	0°04'34
				behind sun begin	1650 Dec 09 14:02	18° <del>2</del> 01'26	
conjunction	1644 Nov 13 04:17	21° <del>M</del> 27'02	0°15'33	behind sun end	1650 Dec 10 02:53	18° <del>2</del> 03'20	
minimum elong	1644 Nov 13 04:17	21° <del>M</del> 27'02	0°15'33	max. Earth dist.	1650 Dec 10 04:23	18° <del>2</del> 03'34	20.18540 AU
behind sun begin	1644 Nov 13 02:22	21° <del>M</del> 26'44		retrograde	1651 Mar 27 05:46	22° <del>2</del> 11'54	
behind sun end	1644 Nov 13 06:11	21° <del>M</del> 27'19		opposition	1651 Jun 11 11:27	20° <del>2</del> 12'26	0°-6'-48
max. Earth dist.	1644 Nov 13 00:39	21° <del>M</del> 26'29	19.78698 AU	min. Earth dist.	1651 Jun 11 03:39	20° <del>2</del> 13'14	18.21902 AU
retrograde	1645 Feb 28 02:06	25° <del>M</del> 41'35		direct	1651 Aug 27 15:18	18° <del>2</del> 11'40	
opposition	1645 May 14 07:57	23° <del>M</del> 40'59	0°15'29				
min. Earth dist.	1645 May 14 10:16	23° <del>M</del> 40'45	17.81756 AU	conjunction	1651 Dec 14 08:23	22° <del>2</del> 22'19	0°-7'-50
direct	1645 Jul 30 15:28	21° <del>M</del> 37'38		minimum elong	1651 Dec 14 08:23	22° <del>2</del> 22'19	0°07'50
				behind sun begin	1651 Dec 14 02:28	22° <del>2</del> 21'27	
conjunction	1645 Nov 17 21:07	25° <del>M</del> 57'08	0°12'17	behind sun end	1651 Dec 14 14:17	22° <del>2</del> 23'12	
minimum elong	1645 Nov 17 21:07	25° <del>M</del> 57'08	0°12'17	max. Earth dist.	1651 Dec 14 17:12	22° <del>2</del> 23'38	20.25262 AU
behind sun begin	1645 Nov 17 16:40	25° <del>M</del> 56'28		retrograde	1652 Mar 30 21:30	26° <del>2</del> 31'01	
behind sun end	1645 Nov 18 01:33	25° <del>M</del> 57'48		opposition	1652 Jun 15 05:46	24° <del>2</del> 31'41	0°-10'-25
max. Earth dist.	1645 Nov 17 19:50	25° <del>M</del> 56'57	19.84918 AU	min. Earth dist.	1652 Jun 14 19:34	24° <del>2</del> 32'43	18.28548 AU
	1646 Feb 12 20:07	0° <del>2</del>		direct	1652 Aug 31 10:56	22° <del>2</del> 31'17	
retrograde	1646 Mar 04 20:48	0° <del>2</del> 10'49					
	1646 Mar 25 05:19	30° <del>R</del> <del>M</del>		conjunction	1652 Dec 17 19:35	26° <del>2</del> 40'29	0°-11'-2
opposition	1646 May 19 05:57	28° <del>M</del> 10'25	0°11'48	minimum elong	1652 Dec 17 19:35	26° <del>2</del> 40'29	0°11'04
min. Earth dist.	1646 May 19 05:28	28° <del>M</del> 10'28	17.88107 AU	behind sun begin	1652 Dec 17 14:38	26° <del>2</del> 39'45	
direct	1646 Aug 04 14:36	26° <del>M</del> 07'29		behind sun end	1652 Dec 18 00:33	26° <del>2</del> 41'12	
	1646 Nov 15 14:53	0° <del>2</del>		max. Earth dist.	1652 Dec 18 06:20	26° <del>2</del> 42'05	20.31816 AU
conjunction	1646 Nov 22 12:55	0° <del>2</del> 25'32	0°08'59		1653 Feb 19 18:20	0° <del>2</del>	
minimum elong	1646 Nov 22 12:55	0° <del>2</del> 25'32	0°08'59	retrograde	1653 Apr 04 09:58	0° <del>2</del> 48'23	
behind sun begin	1646 Nov 22 07:16	0° <del>2</del> 24'41			1653 May 19 20:16	30° <del>R</del> <del>2</del>	
behind sun end	1646 Nov 22 18:34	0° <del>2</del> 26'23		opposition	1653 Jun 19 23:35	28° <del>2</del> 49'08	0°-13'-57
max. Earth dist.	1646 Nov 22 13:38	0° <del>2</del> 25'38	19.91399 AU	min. Earth dist.	1653 Jun 19 13:07	28° <del>2</del> 50'12	18.35018 AU
retrograde	1647 Mar 09 13:08	4° <del>2</del> 38'23		direct	1653 Sep 05 02:49	26° <del>2</del> 49'04	
opposition	1647 May 24 03:31	2° <del>2</del> 38'10	0°08'05		1653 Dec 06 08:59	0° <del>2</del>	
min. Earth dist.	1647 May 24 02:02	2° <del>2</del> 38'19	17.94704 AU	conjunction	1653 Dec 22 06:00	0° <del>2</del> 56'47	0°-14'-11
direct	1647 Aug 09 10:09	0° <del>2</del> 35'40		minimum elong	1653 Dec 22 06:00	0° <del>2</del> 56'47	0°14'11
				behind sun begin	1653 Dec 22 02:41	0° <del>2</del> 56'18	
conjunction	1647 Nov 27 04:02	4° <del>2</del> 52'16	0°05'38	behind sun end	1653 Dec 22 09:19	0° <del>2</del> 57'17	
minimum elong	1647 Nov 27 04:01	4° <del>2</del> 52'15	0°05'38	max. Earth dist.	1653 Dec 22 17:26	0° <del>2</del> 58'30	20.38199 AU
behind sun begin	1647 Nov 26 21:42	4° <del>2</del> 51'19		retrograde	1654 Apr 08 23:56	5° <del>2</del> 03'54	
behind sun end	1647 Nov 27 10:19	4° <del>2</del> 53'12		opposition	1654 Jun 24 16:33	3° <del>2</del> 04'43	0°-17'-23
max. Earth dist.	1647 Nov 27 06:35	4° <del>2</del> 52'37	19.98090 AU	min. Earth dist.	1654 Jun 24 03:45	3° <del>2</del> 06'01	18.41307 AU
retrograde	1648 Mar 13 07:27	9° <del>2</del> 04'15		direct	1654 Sep 09 20:22	1° <del>2</del> 04'57	
opposition	1648 May 28 00:10	7° <del>2</del> 04'15	0°04'21				
min. Earth dist.	1648 May 27 20:02	7° <del>2</del> 04'41	18.01453 AU	conjunction	1654 Dec 26 15:36	5° <del>2</del> 11'14	0°-17'-13
direct	1648 Aug 13 07:46	5° <del>2</del> 02'12		minimum elong	1654 Dec 26 15:36	5° <del>2</del> 11'14	0°17'14
				max. Earth dist.	1654 Dec 27 05:10	5° <del>2</del> 13'15	20.44388 AU
conjunction	1648 Nov 30 18:19	9° <del>2</del> 17'19	0°02'16	retrograde	1655 Apr 13 11:05	9° <del>2</del> 17'34	
minimum elong	1648 Nov 30 18:20	9° <del>2</del> 17'19	0°02'16	opposition	1655 Jun 29 08:52	7° <del>2</del> 18'25	0°-20'-42
behind sun begin	1648 Nov 30 11:46	9° <del>2</del> 16'21		min. Earth dist.	1655 Jun 28 19:43	7° <del>2</del> 19'45	18.47412 AU
behind sun end	1648 Dec 01 00:53	9° <del>2</del> 18'18		direct	1655 Sep 14 11:02	5° <del>2</del> 18'57	
max. Earth dist.	1648 Nov 30 22:51	9° <del>2</del> 17'58	20.04886 AU				
retrograde	1649 Mar 17 22:27	13° <del>2</del> 28'29		conjunction	1655 Dec 31 00:29	9° <del>2</del> 23'48	0°-20'-9
opposition	1649 Jun 01 20:37	11° <del>2</del> 28'41	0°00'36	minimum elong	1655 Dec 31 00:29	9° <del>2</del> 23'48	0°20'10
min. Earth dist.	1649 Jun 01 15:50	11° <del>2</del> 29'10	18.08287 AU	max. Earth dist.	1655 Dec 31 14:39	9° <del>2</del> 25'54	20.50412 AU
desc. node	1649 Jul 30 21:56	9° <del>2</del> 35'24		retrograde	1656 Apr 16 23:11	13° <del>2</del> 29'24	
direct	1649 Aug 18 01:52	9° <del>2</del> 27'04		min. Earth dist.	1656 Jul 02 08:44	11° <del>2</del> 31'49	18.53363 AU
				opposition	1656 Jul 03 00:08	11° <del>2</del> 30'16	0°-23'-52
conjunction	1649 Dec 05 07:42	13° <del>2</del> 40'42	0°-1'-11	direct	1656 Sep 18 01:54	9° <del>2</del> 31'03	
minimum elong	1649 Dec 05 07:42	13° <del>2</del> 40'42	0°01'12				
behind sun begin	1649 Dec 05 01:09	13° <del>2</del> 39'44		conjunction	1657 Jan 03 08:45	13° <del>2</del> 34'34	0°-22'-56
behind sun end	1649 Dec 05 14:15	13° <del>2</del> 41'40		minimum elong	1657 Jan 03 08:45	13° <del>2</del> 34'34	0°22'57
max. Earth dist.	1649 Dec 05 13:39	13° <del>2</del> 41'35	20.11733 AU	max. Earth dist.	1657 Jan 04 01:11	13° <del>2</del> 37'01	20.56282 AU
retrograde	1650 Mar 22 15:58	17° <del>2</del> 51'02		retrograde	1657 Apr 21 09:27	17° <del>2</del> 39'29	
opposition	1650 Jun 06 16:19	15° <del>2</del> 51'25	0°-3'-7	opposition	1657 Jul 07 15:01	15° <del>2</del> 40'23	0°-26'-53
min. Earth dist.	1650 Jun 06 08:54	15° <del>2</del> 52'11	18.15124 AU	min. Earth dist.	1657 Jul 06 23:02	15° <del>2</del> 41'59	18.59173 AU
direct	1650 Aug 22 22:31	13° <del>2</del> 50'14		direct	1657 Sep 22 14:43	13° <del>2</del> 41'28	
conjunction	1650 Dec 09 20:27	18° <del>2</del> 02'23	0°-4'-33	conjunction	1658 Jan 07 16:12	17° <del>2</del> 43'41	0°-25'-36

minimum elong	1658 Jan 07 16:12	17° $\overline{3}$ 43'41	0°25'37	direct	1665 Oct 25 20:58	16° $\approx$ 19'59	
max. Earth dist.	1658 Jan 08 09:13	17° $\overline{3}$ 46'12	20.62028 AU				
retrograde	1658 Apr 25 20:40	21° $\overline{3}$ 47'58		conjunction	1666 Feb 08 15:28	20° $\approx$ 14'39	0°-40'-54
min. Earth dist.	1658 Jul 11 10:56	19° $\overline{3}$ 50'44	18.64855 AU	minimum elong	1666 Feb 08 15:28	20° $\approx$ 14'39	0°40'54
opposition	1658 Jul 12 05:07	19° $\overline{3}$ 48'54	0°-29'-45	max. Earth dist.	1666 Feb 09 14:17	20° $\approx$ 17'57	20.98643 AU
direct	1658 Sep 27 03:19	17° $\overline{3}$ 50'17		retrograde	1666 May 29 01:05	24° $\approx$ 15'55	
				min. Earth dist.	1666 Aug 14 03:09	22° $\approx$ 19'34	19.00064 AU
conjunction	1659 Jan 11 23:22	21° $\overline{3}$ 51'17	0°-28'-6	opposition	1666 Aug 15 01:41	22° $\approx$ 17'19	0°-45'-49
minimum elong	1659 Jan 11 23:22	21° $\overline{3}$ 51'17	0°28'06	direct	1666 Oct 30 03:36	20° $\approx$ 20'46	
max. Earth dist.	1659 Jan 12 18:33	21° $\overline{3}$ 54'07	20.67621 AU				
retrograde	1659 Apr 30 06:12	25° $\overline{3}$ 54'59		conjunction	1667 Feb 12 20:38	24° $\approx$ 14'50	0°-41'-57
opposition	1659 Jul 16 18:28	23° $\overline{3}$ 56'01	0°-32'-26	minimum elong	1667 Feb 12 20:38	24° $\approx$ 14'50	0°41'58
min. Earth dist.	1659 Jul 15 23:50	23° $\overline{3}$ 57'53	18.70366 AU	max. Earth dist.	1667 Feb 13 20:23	24° $\approx$ 18'16	21.01265 AU
direct	1659 Oct 01 14:12	21° $\overline{3}$ 57'42		retrograde	1667 Jun 02 08:33	28° $\approx$ 15'54	
				opposition	1667 Aug 19 10:56	26° $\approx$ 17'16	0°-46'-52
conjunction	1660 Jan 16 05:56	25° $\overline{3}$ 57'34	0°-30'-28	min. Earth dist.	1667 Aug 18 12:47	26° $\approx$ 19'28	19.02417 AU
minimum elong	1660 Jan 16 05:56	25° $\overline{3}$ 57'34	0°30'29	direct	1667 Nov 03 11:26	24° $\approx$ 20'49	
max. Earth dist.	1660 Jan 17 01:20	26° $\overline{3}$ 00'25	20.73038 AU				
	1660 Apr 28 06:12	0° $\approx$		conjunction	1668 Feb 17 01:26	28° $\approx$ 14'20	0°-42'-48
retrograde	1660 May 03 17:14	0° $\approx$ 00'45		minimum elong	1668 Feb 17 01:26	28° $\approx$ 14'20	0°42'49
	1660 May 09 05:23	30° $\overline{R}$ $\overline{3}$		max. Earth dist.	1668 Feb 18 00:08	28° $\approx$ 17'35	21.03369 AU
min. Earth dist.	1660 Jul 19 10:53	28° $\overline{3}$ 03'53	18.75678 AU		1668 Mar 19 16:46	0° $\overline{H}$	
opposition	1660 Jul 20 07:15	28° $\overline{3}$ 01'51	0°-34'-56	retrograde	1668 Jun 05 17:45	2° $\overline{H}$ 15'16	
direct	1660 Oct 05 01:01	26° $\overline{3}$ 03'51		opposition	1668 Aug 22 19:54	0° $\overline{H}$ 16'32	0°-47'-41
	1661 Jan 18 17:53	0° $\approx$		min. Earth dist.	1668 Aug 21 21:41	0° $\overline{H}$ 18'45	19.04277 AU
					1668 Aug 29 18:12	30° $\overline{R}$ $\approx$	
conjunction	1661 Jan 19 12:07	0° $\approx$ 02'40	0°-32'-39	direct	1668 Nov 06 17:17	28° $\approx$ 20'08	
minimum elong	1661 Jan 19 12:07	0° $\approx$ 02'40	0°32'40		1669 Jan 10 06:45	0° $\overline{H}$	
max. Earth dist.	1661 Jan 20 09:32	0° $\approx$ 05'48	20.78214 AU				
retrograde	1661 May 08 02:05	4° $\approx$ 05'24		conjunction	1669 Feb 20 06:08	2° $\overline{H}$ 13'11	0°-43'-27
opposition	1661 Jul 24 19:37	2° $\approx$ 06'36	0°-37'-16	minimum elong	1669 Feb 20 06:08	2° $\overline{H}$ 13'11	0°43'28
min. Earth dist.	1661 Jul 23 22:58	2° $\approx$ 08'39	18.80720 AU	max. Earth dist.	1669 Feb 21 05:55	2° $\overline{H}$ 16'35	21.04985 AU
direct	1661 Oct 09 10:37	0° $\approx$ 08'54		retrograde	1669 Jun 10 00:47	6° $\overline{H}$ 14'02	
				min. Earth dist.	1669 Aug 26 06:22	4° $\overline{H}$ 17'25	19.05669 AU
conjunction	1662 Jan 23 17:57	4° $\approx$ 06'44	0°-34'-40	opposition	1669 Aug 27 04:27	4° $\overline{H}$ 15'12	0°-48'-16
minimum elong	1662 Jan 23 17:57	4° $\approx$ 06'44	0°34'41	direct	1669 Nov 11 00:10	2° $\overline{H}$ 18'52	
max. Earth dist.	1662 Jan 24 15:18	4° $\approx$ 09'51	20.83114 AU				
retrograde	1662 May 12 12:56	8° $\approx$ 09'04		conjunction	1670 Feb 24 10:48	6° $\overline{H}$ 11'30	0°-43'-52
min. Earth dist.	1662 Jul 28 09:29	6° $\approx$ 12'31	18.85463 AU	minimum elong	1670 Feb 24 10:48	6° $\overline{H}$ 11'30	0°43'53
opposition	1662 Jul 29 07:21	6° $\approx$ 10'20	0°-39'-23	max. Earth dist.	1670 Feb 25 09:33	6° $\overline{H}$ 14'46	21.06172 AU
direct	1662 Oct 13 20:01	4° $\approx$ 12'56		retrograde	1670 Jun 14 09:57	10° $\overline{H}$ 12'21	
				opposition	1670 Aug 31 12:31	8° $\overline{H}$ 13'25	0°-48'-37
conjunction	1663 Jan 27 23:39	8° $\approx$ 09'53	0°-36'-31	min. Earth dist.	1670 Aug 30 14:29	8° $\overline{H}$ 15'37	19.06661 AU
minimum elong	1663 Jan 27 23:39	8° $\approx$ 09'53	0°36'32	direct	1670 Nov 15 05:43	6° $\overline{H}$ 17'04	
max. Earth dist.	1663 Jan 28 22:40	8° $\approx$ 13'14	20.87664 AU				
retrograde	1663 May 16 21:18	12° $\approx$ 11'52		conjunction	1671 Feb 28 15:39	10° $\overline{H}$ 09'27	0°-44'-5
opposition	1663 Aug 02 18:38	10° $\approx$ 13'13	0°-41'-19	minimum elong	1671 Feb 28 15:39	10° $\overline{H}$ 09'27	0°44'06
min. Earth dist.	1663 Aug 01 20:49	10° $\approx$ 15'24	18.89817 AU	max. Earth dist.	1671 Mar 01 15:23	10° $\overline{H}$ 12'51	21.06956 AU
direct	1663 Oct 18 04:43	8° $\approx$ 16'06		retrograde	1671 Jun 18 17:04	14° $\overline{H}$ 10'20	
				opposition	1671 Sep 04 20:16	12° $\overline{H}$ 11'18	0°-48'-43
conjunction	1664 Feb 01 05:02	12° $\approx$ 12'12	0°-38'-10	min. Earth dist.	1671 Sep 03 22:23	12° $\overline{H}$ 13'30	19.07248 AU
minimum elong	1664 Feb 01 05:02	12° $\approx$ 12'12	0°38'11	direct	1671 Nov 19 11:10	10° $\overline{H}$ 15'00	
max. Earth dist.	1664 Feb 02 03:30	12° $\approx$ 15'28	20.91806 AU				
	1664 Mar 25 08:56	15° $\approx$		conjunction	1672 Mar 03 20:22	14° $\overline{H}$ 07'11	0°-44'-5
retrograde	1664 May 20 07:26	16° $\approx$ 13'54		minimum elong	1672 Mar 03 20:22	14° $\overline{H}$ 07'11	0°44'07
	1664 Jul 18 01:25	15° $\overline{R}$ $\approx$		max. Earth dist.	1672 Mar 04 18:56	14° $\overline{H}$ 10'25	21.07358 AU
min. Earth dist.	1664 Aug 05 06:51	14° $\approx$ 17'33	18.93740 AU	retrograde	1672 Jun 22 02:01	18° $\overline{H}$ 08'12	
opposition	1664 Aug 06 05:20	14° $\approx$ 15'19	0°-43'-2	min. Earth dist.	1672 Sep 07 06:10	16° $\overline{H}$ 11'14	19.07466 AU
direct	1664 Oct 21 12:42	12° $\approx$ 18'25		opposition	1672 Sep 08 03:48	16° $\overline{H}$ 09'04	0°-48'-37
	1665 Jan 13 21:27	15° $\approx$		direct	1672 Nov 22 16:33	14° $\overline{H}$ 12'47	
conjunction	1665 Feb 04 10:26	16° $\approx$ 13'47	0°-39'-38	conjunction	1673 Mar 08 01:30	18° $\overline{H}$ 04'54	0°-43'-53
minimum elong	1665 Feb 04 10:26	16° $\approx$ 13'47	0°39'39	minimum elong	1673 Mar 08 01:30	18° $\overline{H}$ 04'54	0°43'53
max. Earth dist.	1665 Feb 05 10:09	16° $\approx$ 17'13	20.95478 AU	max. Earth dist.	1673 Mar 09 00:56	18° $\overline{H}$ 08'15	21.07384 AU
retrograde	1665 May 24 15:30	20° $\approx$ 15'14		retrograde	1673 Jun 26 09:45	22° $\overline{H}$ 06'05	
opposition	1665 Aug 10 15:45	18° $\approx$ 16'40	0°-44'-32	opposition	1673 Sep 12 11:09	20° $\overline{H}$ 06'53	0°-48'-16
min. Earth dist.	1665 Aug 09 17:30	18° $\approx$ 18'53	18.97162 AU	min. Earth dist.	1673 Sep 11 13:45	20° $\overline{H}$ 09'02	19.07297 AU

direct	1673 Nov 26 21:28	18° <del>✕</del> 10'37		direct	1681 Dec 28 17:29	20° <del>Υ</del> 09'11	
conjunction	1674 Mar 12 06:42	22° <del>✕</del> 02'44	0°-43'-28	conjunction	1682 Apr 13 17:24	24° <del>Υ</del> 04'34	0°-32'-53
minimum elong	1674 Mar 12 06:42	22° <del>✕</del> 02'44	0°43'29	minimum elong	1682 Apr 13 17:24	24° <del>Υ</del> 04'34	0°32'54
max. Earth dist.	1674 Mar 13 04:44	22° <del>✕</del> 05'53	21.07032 AU	max. Earth dist.	1682 Apr 14 06:30	24° <del>Υ</del> 06'26	20.87371 AU
retrograde	1674 Jun 30 18:39	26° <del>✕</del> 04'10		retrograde	1682 Aug 02 21:22	28° <del>Υ</del> 09'39	
opposition	1674 Sep 16 18:25	24° <del>✕</del> 04'54	0°-47'-42	opposition	1682 Oct 19 04:30	26° <del>Υ</del> 09'20	0°-35'-9
min. Earth dist.	1674 Sep 15 21:39	24° <del>✕</del> 06'59	19.06746 AU	min. Earth dist.	1682 Oct 18 16:59	26° <del>Υ</del> 10'31	18.85142 AU
direct	1674 Dec 01 02:29	22° <del>✕</del> 08'38		direct	1683 Jan 01 23:17	24° <del>Υ</del> 11'56	
conjunction	1675 Mar 16 12:28	26° <del>✕</del> 00'52	0°-42'-51	conjunction	1683 Apr 18 03:12	28° <del>Υ</del> 08'06	0°-30'-43
minimum elong	1675 Mar 16 12:28	26° <del>✕</del> 00'52	0°42'51	minimum elong	1683 Apr 18 03:12	28° <del>Υ</del> 08'06	0°30'44
max. Earth dist.	1675 Mar 17 11:02	26° <del>✕</del> 04'06	21.06270 AU	max. Earth dist.	1683 Apr 18 16:06	28° <del>Υ</del> 09'56	20.82811 AU
	1675 Jun 24 17:19	0° <del>Υ</del>			1683 May 21 18:41	0° <del>♄</del>	
retrograde	1675 Jul 05 03:09	0° <del>Υ</del> 02'36		retrograde	1683 Aug 07 07:21	2° <del>♄</del> 13'47	
	1675 Jul 15 11:54	30° <del>♁</del>		opposition	1683 Oct 23 12:01	0° <del>♄</del> 13'17	0°-32'-40
min. Earth dist.	1675 Sep 20 05:13	28° <del>✕</del> 05'19	19.05765 AU	min. Earth dist.	1683 Oct 23 01:12	0° <del>♄</del> 14'24	18.80414 AU
opposition	1675 Sep 21 01:25	28° <del>✕</del> 03'17	0°-46'-54		1683 Oct 28 21:28	30° <del>♁</del>	
direct	1675 Dec 05 07:42	26° <del>✕</del> 07'01		direct	1684 Jan 06 06:26	28° <del>Υ</del> 15'36	
					1684 Mar 11 23:31	0° <del>♄</del>	
conjunction	1676 Mar 19 18:27	29° <del>✕</del> 59'27	0°-42'-1	conjunction	1684 Apr 21 13:24	2° <del>♄</del> 12'37	0°-28'-23
minimum elong	1676 Mar 19 18:27	29° <del>✕</del> 59'27	0°42'02	minimum elong	1684 Apr 21 13:24	2° <del>♄</del> 12'37	0°28'24
	1676 Mar 19 22:19	0° <del>Υ</del>		max. Earth dist.	1684 Apr 21 23:52	2° <del>♄</del> 14'07	20.77947 AU
max. Earth dist.	1676 Mar 20 15:14	0° <del>Υ</del> 02'25	21.05081 AU	retrograde	1684 Aug 10 18:20	6° <del>♄</del> 19'00	
retrograde	1676 Jul 08 11:53	4° <del>Υ</del> 01'33		opposition	1684 Oct 26 19:56	4° <del>♄</del> 18'18	0°-30'-1
opposition	1676 Sep 24 08:36	2° <del>Υ</del> 02'09	0°-45'-52	min. Earth dist.	1684 Oct 26 10:52	4° <del>♄</del> 19'14	18.75420 AU
min. Earth dist.	1676 Sep 23 13:27	2° <del>Υ</del> 04'05	19.04349 AU	direct	1685 Jan 09 12:54	2° <del>♄</del> 20'19	
direct	1676 Dec 08 12:15	0° <del>Υ</del> 05'51					
conjunction	1677 Mar 24 00:57	3° <del>Υ</del> 58'35	0°-40'-59	conjunction	1685 Apr 26 00:24	6° <del>♄</del> 18'17	0°-25'-54
minimum elong	1677 Mar 24 00:57	3° <del>Υ</del> 58'35	0°41'00	minimum elong	1685 Apr 26 00:24	6° <del>♄</del> 18'17	0°25'54
max. Earth dist.	1677 Mar 24 21:57	4° <del>Υ</del> 01'35	21.03422 AU	max. Earth dist.	1685 Apr 26 10:43	6° <del>♄</del> 19'46	20.72831 AU
retrograde	1677 Jul 12 21:15	8° <del>Υ</del> 01'06		retrograde	1685 Aug 15 05:34	10° <del>♄</del> 25'24	
opposition	1677 Sep 28 15:46	6° <del>Υ</del> 01'38	0°-44'-37	opposition	1685 Oct 31 04:03	8° <del>♄</del> 24'32	0°-27'-11
min. Earth dist.	1677 Sep 27 21:26	6° <del>Υ</del> 03'29	19.02433 AU	min. Earth dist.	1685 Oct 30 19:35	8° <del>♄</del> 25'24	18.70183 AU
direct	1677 Dec 12 18:10	4° <del>Υ</del> 05'16		direct	1686 Jan 13 20:42	6° <del>♄</del> 26'16	
conjunction	1678 Mar 28 08:00	7° <del>Υ</del> 58'23	0°-39'-46	conjunction	1686 Apr 30 12:06	10° <del>♄</del> 25'15	0°-23'-16
minimum elong	1678 Mar 28 08:00	7° <del>Υ</del> 58'23	0°39'46	minimum elong	1686 Apr 30 12:06	10° <del>♄</del> 25'15	0°23'17
max. Earth dist.	1678 Mar 29 02:42	8° <del>Υ</del> 01'03	21.01257 AU	max. Earth dist.	1686 Apr 30 19:50	10° <del>♄</del> 26'22	20.67497 AU
retrograde	1678 Jul 17 06:09	12° <del>Υ</del> 01'21		retrograde	1686 Aug 19 17:07	14° <del>♄</del> 33'08	
opposition	1678 Oct 02 22:56	10° <del>Υ</del> 01'46	0°-43'-9	opposition	1686 Nov 04 12:27	12° <del>♄</del> 32'07	0°-24'-13
min. Earth dist.	1678 Oct 02 06:10	10° <del>Υ</del> 03'27	19.00002 AU	min. Earth dist.	1686 Nov 04 05:58	12° <del>♄</del> 32'47	18.64754 AU
direct	1678 Dec 16 22:46	8° <del>Υ</del> 05'16		direct	1687 Jan 18 03:48	10° <del>♄</del> 33'33	
conjunction	1679 Apr 01 15:44	11° <del>Υ</del> 58'51	0°-38'-19	conjunction	1687 May 05 00:44	14° <del>♄</del> 33'41	0°-20'-31
minimum elong	1679 Apr 01 15:44	11° <del>Υ</del> 58'51	0°38'21	minimum elong	1687 May 05 00:44	14° <del>♄</del> 33'41	0°20'31
max. Earth dist.	1679 Apr 02 10:08	12° <del>Υ</del> 01'29	20.98547 AU	max. Earth dist.	1687 May 05 08:09	14° <del>♄</del> 34'45	20.61979 AU
retrograde	1679 Jul 21 15:45	16° <del>Υ</del> 02'17			1687 May 12 14:32	15° <del>♄</del>	
opposition	1679 Oct 07 06:11	14° <del>Υ</del> 02'34	0°-41'-28	retrograde	1687 Aug 24 06:00	18° <del>♄</del> 42'21	
min. Earth dist.	1679 Oct 06 14:22	14° <del>Υ</del> 04'11	18.97010 AU	opposition	1687 Nov 08 21:18	16° <del>♄</del> 41'13	0°-21'-6
direct	1679 Dec 21 05:21	12° <del>Υ</del> 05'55		min. Earth dist.	1687 Nov 08 15:23	16° <del>♄</del> 41'50	18.59143 AU
					1687 Dec 27 07:04	15° <del>♁</del>	
conjunction	1680 Apr 04 23:39	16° <del>Υ</del> 00'01	0°-36'-42	direct	1688 Jan 22 12:35	14° <del>♄</del> 42'23	
minimum elong	1680 Apr 04 23:39	16° <del>Υ</del> 00'01	0°36'42		1688 Feb 17 09:04	15° <del>♄</del>	
max. Earth dist.	1680 Apr 05 15:31	16° <del>Υ</del> 02'17	20.95300 AU				
retrograde	1680 Jul 25 01:17	20° <del>Υ</del> 03'59		conjunction	1688 May 08 13:52	18° <del>♄</del> 43'42	0°-17'-38
opposition	1680 Oct 10 13:37	18° <del>Υ</del> 04'04	0°-39'-34	minimum elong	1688 May 08 13:52	18° <del>♄</del> 43'42	0°17'40
min. Earth dist.	1680 Oct 09 23:29	18° <del>Υ</del> 05'31	18.93503 AU	max. Earth dist.	1688 May 08 18:41	18° <del>♄</del> 44'23	20.56293 AU
direct	1680 Dec 24 10:34	16° <del>Υ</del> 07'12		retrograde	1688 Aug 27 18:41	22° <del>♄</del> 53'14	
				opposition	1688 Nov 12 06:44	20° <del>♄</del> 51'59	0°-17'-51
conjunction	1681 Apr 09 08:21	20° <del>Υ</del> 01'54	0°-34'-53	min. Earth dist.	1688 Nov 12 02:57	20° <del>♄</del> 52'23	18.53377 AU
minimum elong	1681 Apr 09 08:21	20° <del>Υ</del> 01'54	0°34'55	direct	1689 Jan 25 20:29	18° <del>♄</del> 52'52	
max. Earth dist.	1681 Apr 09 23:57	20° <del>Υ</del> 04'08	20.91552 AU				
retrograde	1681 Jul 29 10:57	24° <del>Υ</del> 06'24		conjunction	1689 May 13 04:15	22° <del>♄</del> 55'28	0°-14'-39
opposition	1681 Oct 14 20:57	22° <del>Υ</del> 06'18	0°-37'-27	minimum elong	1689 May 13 04:15	22° <del>♄</del> 55'28	0°14'40
min. Earth dist.	1681 Oct 14 07:40	22° <del>Υ</del> 07'40	18.89520 AU	behind sun begin	1689 May 13 01:39	22° <del>♄</del> 55'06	

behind sun end	1689 May 13 06:51	22°♄55'50		opposition	1695 Dec 12 15:25	20°♄57'57	0°07'17
max. Earth dist.	1689 May 13 08:32	22°♄56'04	20.50447 AU	min. Earth dist.	1695 Dec 12 22:34	20°♄57'11	18.07865 AU
retrograde	1689 Sep 01 09:23	27°♄05'51		direct	1696 Feb 25 06:38	18°♄56'12	
opposition	1689 Nov 16 16:23	25°♄04'32	0°-14'-29				
min. Earth dist.	1689 Nov 16 13:25	25°♄04'50	18.47435 AU	conjunction	1696 Jun 13 10:09	23°♄08'50	0°08'16
direct	1690 Jan 30 06:23	23°♄05'08		minimum elong	1696 Jun 13 10:08	23°♄08'50	0°08'16
				behind sun begin	1696 Jun 13 04:11	23°♄07'58	
conjunction	1690 May 17 19:30	27°♄09'04	0°-11'-34	behind sun end	1696 Jun 13 16:06	23°♄09'42	
minimum elong	1690 May 17 19:30	27°♄09'04	0°11'35	max. Earth dist.	1696 Jun 12 23:33	23°♄07'16	20.04438 AU
behind sun begin	1690 May 17 14:45	27°♄08'23		retrograde	1696 Oct 02 04:21	27°♄25'13	
behind sun end	1690 May 18 00:15	27°♄09'44		opposition	1696 Dec 16 05:25	25°♄22'54	0°10'58
max. Earth dist.	1690 May 17 20:48	27°♄09'15	20.44414 AU	min. Earth dist.	1696 Dec 16 15:02	25°♄21'51	18.00995 AU
	1690 Jul 10 04:14	0°♄		direct	1697 Feb 28 20:20	23°♄20'41	
retrograde	1690 Sep 05 23:41	1°♄20'21					
	1690 Nov 04 12:25	30°♄		conjunction	1697 Jun 18 07:35	27°♄34'50	0°11'33
opposition	1690 Nov 21 02:51	29°♄18'56	0°-11'00	minimum elong	1697 Jun 18 07:35	27°♄34'50	0°11'34
min. Earth dist.	1690 Nov 21 02:25	29°♄18'59	18.41305 AU	behind sun begin	1697 Jun 18 02:49	27°♄34'08	
direct	1691 Feb 03 15:41	27°♄19'13		behind sun end	1697 Jun 18 12:20	27°♄35'32	
	1691 Apr 28 00:12	0°♄		max. Earth dist.	1697 Jun 17 19:46	27°♄33'04	19.97617 AU
					1697 Jul 31 01:16	0°♄	
conjunction	1691 May 22 11:46	1°♄24'33	0°-8'-24	retrograde	1697 Oct 06 23:53	1°♄52'01	
minimum elong	1691 May 22 11:46	1°♄24'33	0°08'25		1697 Dec 16 18:31	30°♄	
behind sun begin	1691 May 22 05:52	1°♄23'42		opposition	1697 Dec 20 19:46	29°♄49'31	0°14'38
behind sun end	1691 May 22 17:40	1°♄25'23		min. Earth dist.	1697 Dec 21 05:48	29°♄48'27	17.94236 AU
max. Earth dist.	1691 May 22 12:05	1°♄24'35	20.38175 AU	direct	1698 Mar 05 13:27	27°♄46'53	
retrograde	1691 Sep 10 15:48	5°♄36'43			1698 May 18 21:43	0°♄	
opposition	1691 Nov 25 13:44	3°♄35'12	0°-7'-27				
min. Earth dist.	1691 Nov 25 14:09	3°♄35'09	18.34951 AU	conjunction	1698 Jun 23 05:47	2°♄02'33	0°14'48
direct	1692 Feb 08 02:54	1°♄35'09		minimum elong	1698 Jun 23 05:47	2°♄02'33	0°14'48
				behind sun begin	1698 Jun 23 03:23	2°♄02'12	
conjunction	1692 May 26 04:53	5°♄41'54	0°-5'-10	behind sun end	1698 Jun 23 08:11	2°♄02'54	
minimum elong	1692 May 26 04:52	5°♄41'54	0°05'10	max. Earth dist.	1698 Jun 22 16:08	2°♄00'30	19.90930 AU
behind sun begin	1692 May 25 22:19	5°♄40'57		retrograde	1698 Oct 11 17:41	6°♄20'31	
behind sun end	1692 May 26 11:25	5°♄42'50		opposition	1698 Dec 25 11:05	4°♄17'54	0°18'13
max. Earth dist.	1692 May 26 02:02	5°♄41'31	20.31714 AU	min. Earth dist.	1698 Dec 25 23:18	4°♄16'34	17.87660 AU
retrograde	1692 Sep 14 07:35	9°♄54'57		direct	1699 Mar 10 04:35	2°♄14'50	
opposition	1692 Nov 29 01:22	7°♄53'18	0°-3'-49				
min. Earth dist.	1692 Nov 29 04:29	7°♄52'58	18.28392 AU	conjunction	1699 Jun 28 04:34	6°♄32'01	0°17'59
direct	1693 Feb 11 13:51	5°♄52'51		minimum elong	1699 Jun 28 04:34	6°♄32'01	0°17'59
				max. Earth dist.	1699 Jun 27 13:38	6°♄29'46	19.84471 AU
conjunction	1693 May 30 22:59	10°♄01'02	0°-1'-51	retrograde	1699 Oct 16 14:28	10°♄50'46	
minimum elong	1693 May 30 23:00	10°♄01'02	0°01'53	opposition	1699 Dec 30 02:56	8°♄48'02	0°21'43
behind sun begin	1693 May 30 16:14	10°♄00'04		min. Earth dist.	1699 Dec 30 15:16	8°♄46'42	17.81336 AU
behind sun end	1693 May 31 05:46	10°♄02'01		direct	1700 Mar 14 23:29	6°♄44'35	
max. Earth dist.	1693 May 30 18:55	10°♄00'29	20.25060 AU				
retrograde	1693 Sep 19 00:51	14°♄14'57		conjunction	1700 Jul 03 04:16	11°♄03'18	0°21'04
opposition	1693 Dec 03 13:28	12°♄13'09	0°00'-8	minimum elong	1700 Jul 03 04:16	11°♄03'18	0°21'04
min. Earth dist.	1693 Dec 03 17:23	12°♄12'43	18.21643 AU	max. Earth dist.	1700 Jul 02 12:10	11°♄00'52	19.78283 AU
asc. node	1693 Dec 18 03:33	11°♄36'30		retrograde	1700 Oct 21 09:23	15°♄22'47	
direct	1694 Feb 16 03:03	10°♄12'17		opposition	1701 Jan 03 19:34	13°♄20'01	0°25'06
				min. Earth dist.	1701 Jan 04 09:51	13°♄18'28	17.75316 AU
conjunction	1694 Jun 04 17:56	14°♄21'56	0°01'34	direct	1701 Mar 19 16:02	11°♄16'13	
minimum elong	1694 Jun 04 17:56	14°♄21'56	0°01'35	max. Earth dist.	1701 Jul 07 11:02	15°♄33'46	19.72434 AU
behind sun begin	1694 Jun 04 11:10	14°♄20'58					
behind sun end	1694 Jun 05 00:42	14°♄22'55		conjunction	1701 Jul 08 04:42	15°♄36'27	0°24'03
max. Earth dist.	1694 Jun 04 10:53	14°♄20'55	20.18238 AU	minimum elong	1701 Jul 08 04:42	15°♄36'27	0°24'03
retrograde	1694 Sep 23 17:09	18°♄36'41		retrograde	1701 Oct 26 07:35	19°♄56'40	
opposition	1694 Dec 08 02:10	16°♄34'42	0°03'34	opposition	1702 Jan 08 12:53	17°♄53'53	0°28'21
min. Earth dist.	1694 Dec 08 08:47	16°♄34'00	18.14775 AU	min. Earth dist.	1702 Jan 09 03:21	17°♄52'19	17.69635 AU
direct	1695 Feb 20 15:22	14°♄33'24		direct	1702 Mar 24 12:45	15°♄49'47	
				max. Earth dist.	1702 Jul 12 11:38	20°♄08'44	19.66910 AU
conjunction	1695 Jun 09 13:45	18°♄44'32	0°04'56				
minimum elong	1695 Jun 09 13:45	18°♄44'32	0°04'56	conjunction	1702 Jul 13 05:57	20°♄11'31	0°26'54
behind sun begin	1695 Jun 09 07:10	18°♄43'35		minimum elong	1702 Jul 13 05:57	20°♄11'31	0°26'54
behind sun end	1695 Jun 09 20:20	18°♄45'30		retrograde	1702 Oct 31 03:50	24°♄32'26	
max. Earth dist.	1695 Jun 09 05:30	18°♄43'20	20.11344 AU	opposition	1703 Jan 13 07:04	22°♄29'40	0°31'27
retrograde	1695 Sep 28 11:35	23°♄00'06		min. Earth dist.	1703 Jan 13 23:20	22°♄27'54	17.64288 AU

direct	1703 Mar 29 07:26	20° $\mathring{S}$ 25'18			1710 Sep 27 00:13	0° $\mathring{N}$	
max. Earth dist.	1703 Jul 17 11:36	24° $\mathring{S}$ 45'24	19.61736 AU	retrograde	1710 Dec 08 01:08	2° $\mathring{N}$ 12'16	
				opposition	1711 Feb 19 09:17	0° $\mathring{N}$ 09'35	0°47'51
conjunction	1703 Jul 18 07:46	24° $\mathring{S}$ 48'29	0°29'36	min. Earth dist.	1711 Feb 20 06:34	0° $\mathring{N}$ 07'15	17.33799 AU
minimum elong	1703 Jul 18 07:46	24° $\mathring{S}$ 48'29	0°29'35		1711 Feb 23 00:48	30° $\mathring{R}$ $\mathring{S}$	
retrograde	1703 Nov 05 02:55	29° $\mathring{S}$ 10'04		direct	1711 May 06 04:49	28° $\mathring{S}$ 03'20	
opposition	1704 Jan 18 01:54	27° $\mathring{S}$ 07'20	0°34'22		1711 Jul 13 22:52	0° $\mathring{N}$	
min. Earth dist.	1704 Jan 18 18:33	27° $\mathring{S}$ 05'32	17.59283 AU				
direct	1704 Apr 02 05:33	25° $\mathring{S}$ 02'43		conjunction	1711 Aug 26 14:25	2° $\mathring{N}$ 34'31	0°43'16
				minimum elong	1711 Aug 26 14:25	2° $\mathring{N}$ 34'31	0°43'16
conjunction	1704 Jul 22 10:21	29° $\mathring{S}$ 27'17	0°32'07	max. Earth dist.	1711 Aug 25 12:50	2° $\mathring{N}$ 30'31	19.32781 AU
minimum elong	1704 Jul 22 10:20	29° $\mathring{S}$ 27'17	0°32'08	retrograde	1711 Dec 12 23:57	6° $\mathring{N}$ 58'32	
max. Earth dist.	1704 Jul 21 13:54	29° $\mathring{S}$ 24'09	19.56874 AU	opposition	1712 Feb 24 08:58	4° $\mathring{N}$ 55'51	0°48'34
	1704 Jul 31 07:26	0° $\mathring{S}$		min. Earth dist.	1712 Feb 25 06:43	4° $\mathring{N}$ 53'28	17.32002 AU
retrograde	1704 Nov 09 01:06	3° $\mathring{S}$ 49'28		direct	1712 May 10 07:13	2° $\mathring{N}$ 49'25	
opposition	1705 Jan 21 21:42	1° $\mathring{S}$ 46'47	0°37'05				
min. Earth dist.	1705 Jan 22 15:56	1° $\mathring{S}$ 44'47	17.54576 AU	conjunction	1712 Aug 30 18:37	7° $\mathring{N}$ 21'03	0°43'45
	1705 Mar 11 21:23	30° $\mathring{R}$ $\mathring{S}$		minimum elong	1712 Aug 30 18:37	7° $\mathring{N}$ 21'03	0°43'46
direct	1705 Apr 07 02:40	29° $\mathring{S}$ 41'55		max. Earth dist.	1712 Aug 29 18:02	7° $\mathring{N}$ 17'11	19.31281 AU
	1705 May 03 02:38	0° $\mathring{S}$		retrograde	1712 Dec 17 00:29	11° $\mathring{N}$ 44'59	
				opposition	1713 Feb 28 09:02	9° $\mathring{N}$ 42'20	0°48'56
conjunction	1705 Jul 27 13:30	4° $\mathring{S}$ 07'46	0°34'27	min. Earth dist.	1713 Mar 01 05:43	9° $\mathring{N}$ 40'04	17.30801 AU
minimum elong	1705 Jul 27 13:30	4° $\mathring{S}$ 07'46	0°34'27	direct	1713 May 15 11:11	7° $\mathring{N}$ 35'49	
max. Earth dist.	1705 Jul 26 14:48	4° $\mathring{S}$ 04'17	19.52317 AU				
retrograde	1705 Nov 14 00:47	8° $\mathring{S}$ 30'28		conjunction	1713 Sep 04 22:37	12° $\mathring{N}$ 07'44	0°43'56
opposition	1706 Jan 26 18:01	6° $\mathring{S}$ 27'49	0°39'35	minimum elong	1713 Sep 04 22:37	12° $\mathring{N}$ 07'44	0°43'55
min. Earth dist.	1706 Jan 27 12:51	6° $\mathring{S}$ 25'45	17.50180 AU	max. Earth dist.	1713 Sep 03 22:13	12° $\mathring{N}$ 03'54	19.30393 AU
direct	1706 Apr 12 02:03	4° $\mathring{S}$ 22'41		retrograde	1713 Dec 21 23:08	16° $\mathring{N}$ 31'33	
				opposition	1714 Mar 05 09:33	14° $\mathring{N}$ 28'57	0°48'58
conjunction	1706 Aug 01 17:17	8° $\mathring{S}$ 49'45	0°36'34	min. Earth dist.	1714 Mar 06 06:31	14° $\mathring{N}$ 26'40	17.30248 AU
minimum elong	1706 Aug 01 17:17	8° $\mathring{S}$ 49'45	0°36'34	direct	1714 May 20 13:58	12° $\mathring{N}$ 22'24	
max. Earth dist.	1706 Jul 31 18:37	8° $\mathring{S}$ 46'15	19.48065 AU	max. Earth dist.	1714 Sep 09 02:54	16° $\mathring{N}$ 50'48	19.30175 AU
retrograde	1706 Nov 19 00:41	13° $\mathring{S}$ 12'52					
opposition	1707 Jan 31 15:15	11° $\mathring{S}$ 10'14	0°41'49	conjunction	1714 Sep 10 02:22	16° $\mathring{N}$ 54'30	0°43'48
min. Earth dist.	1707 Feb 01 11:08	11° $\mathring{S}$ 08'03	17.46092 AU	minimum elong	1714 Sep 10 02:22	16° $\mathring{N}$ 54'30	0°43'48
direct	1707 Apr 17 00:51	9° $\mathring{S}$ 04'52		retrograde	1714 Dec 27 00:10	21° $\mathring{N}$ 18'07	
				opposition	1715 Mar 10 10:19	19° $\mathring{N}$ 15'38	0°48'39
conjunction	1707 Aug 06 21:02	13° $\mathring{S}$ 33'00	0°38'27	min. Earth dist.	1715 Mar 11 05:38	19° $\mathring{N}$ 13'32	17.30348 AU
minimum elong	1707 Aug 06 21:02	13° $\mathring{S}$ 32'59	0°38'27	direct	1715 May 25 18:26	17° $\mathring{N}$ 09'08	
max. Earth dist.	1707 Aug 05 20:23	13° $\mathring{S}$ 29'10	19.44152 AU	max. Earth dist.	1715 Sep 14 07:19	21° $\mathring{N}$ 37'44	19.30596 AU
	1707 Aug 30 14:57	15° $\mathring{S}$					
retrograde	1707 Nov 24 00:35	17° $\mathring{S}$ 56'29		conjunction	1715 Sep 15 05:43	21° $\mathring{N}$ 41'15	0°43'22
opposition	1708 Feb 05 12:59	15° $\mathring{S}$ 53'50	0°43'47	minimum elong	1715 Sep 15 05:43	21° $\mathring{N}$ 41'15	0°43'22
min. Earth dist.	1708 Feb 06 09:29	15° $\mathring{S}$ 51'35	17.42371 AU	retrograde	1715 Dec 31 23:11	26° $\mathring{N}$ 04'38	
	1708 Feb 26 17:00	15° $\mathring{R}$ $\mathring{S}$		opposition	1716 Mar 14 11:26	24° $\mathring{N}$ 02'19	0°48'01
direct	1708 Apr 21 01:04	13° $\mathring{S}$ 48'12		min. Earth dist.	1716 Mar 15 07:04	24° $\mathring{N}$ 00'11	17.31080 AU
	1708 Jun 12 23:24	15° $\mathring{S}$		direct	1716 May 29 20:54	21° $\mathring{N}$ 55'54	
max. Earth dist.	1708 Aug 10 01:13	18° $\mathring{S}$ 13'33	19.40617 AU	max. Earth dist.	1716 Sep 18 10:57	26° $\mathring{N}$ 24'30	19.31634 AU
conjunction	1708 Aug 11 01:23	18° $\mathring{S}$ 17'18	0°40'04	conjunction	1716 Sep 19 08:48	26° $\mathring{N}$ 27'57	0°42'39
minimum elong	1708 Aug 11 01:23	18° $\mathring{S}$ 17'18	0°40'04	minimum elong	1716 Sep 19 08:48	26° $\mathring{N}$ 27'57	0°42'39
retrograde	1708 Nov 28 01:16	22° $\mathring{S}$ 41'02			1716 Nov 22 23:42	0° $\mathring{S}$	
opposition	1709 Feb 09 11:10	20° $\mathring{S}$ 38'24	0°45'27	retrograde	1717 Jan 05 00:32	0° $\mathring{S}$ 51'01	
min. Earth dist.	1709 Feb 10 08:10	20° $\mathring{S}$ 36'05	17.39040 AU		1717 Feb 18 09:00	30° $\mathring{R}$ $\mathring{N}$	
direct	1709 Apr 26 01:18	18° $\mathring{S}$ 32'32		opposition	1717 Mar 19 12:33	28° $\mathring{N}$ 48'52	0°47'03
max. Earth dist.	1709 Aug 15 04:00	22° $\mathring{S}$ 58'27	19.37507 AU	min. Earth dist.	1717 Mar 20 06:28	28° $\mathring{N}$ 46'55	17.32392 AU
				direct	1717 Jun 04 01:37	26° $\mathring{N}$ 42'35	
conjunction	1709 Aug 16 05:45	23° $\mathring{S}$ 02'28	0°41'26		1717 Sep 04 13:34	0° $\mathring{S}$	
minimum elong	1709 Aug 16 05:45	23° $\mathring{S}$ 02'28	0°41'26				
retrograde	1709 Dec 03 00:42	27° $\mathring{S}$ 26'23		conjunction	1717 Sep 24 11:36	1° $\mathring{S}$ 14'25	0°41'38
opposition	1710 Feb 14 10:01	25° $\mathring{S}$ 23'43	0°46'49	minimum elong	1717 Sep 24 11:36	1° $\mathring{S}$ 14'25	0°41'38
min. Earth dist.	1710 Feb 15 07:38	25° $\mathring{S}$ 21'21	17.36172 AU	max. Earth dist.	1717 Sep 23 15:20	1° $\mathring{S}$ 11'14	19.33216 AU
direct	1710 May 01 02:44	23° $\mathring{S}$ 17'37		retrograde	1718 Jan 09 23:24	5° $\mathring{S}$ 37'06	
max. Earth dist.	1710 Aug 20 09:17	27° $\mathring{S}$ 44'23	19.34879 AU	opposition	1718 Mar 24 14:11	3° $\mathring{S}$ 35'08	0°45'45
				min. Earth dist.	1718 Mar 25 08:20	3° $\mathring{S}$ 33'10	17.34233 AU
conjunction	1710 Aug 21 10:09	27° $\mathring{S}$ 48'16	0°42'30	direct	1718 Jun 09 03:51	1° $\mathring{S}$ 29'02	
minimum elong	1710 Aug 21 10:09	27° $\mathring{S}$ 48'16	0°42'30				



conjunction	1718 Sep 29 13:36	6° <del>00</del> '29	0°40'20	conjunction	1726 Nov 06 04:21	13° <del>00</del> '30'32	0°21'24
minimum elong	1718 Sep 29 13:36	6° <del>00</del> '29	0°40'19	minimum elong	1726 Nov 06 04:21	13° <del>00</del> '30'32	0°21'24
max. Earth dist.	1718 Sep 28 17:37	5° <del>00</del> '57'20	19.35309 AU	max. Earth dist.	1726 Nov 05 20:43	13° <del>00</del> '29'21	19.66650 AU
retrograde	1719 Jan 15 00:36	10° <del>00</del> '22'44			1726 Nov 30 13:33	15° <del>00</del> ' <del>00</del>	
opposition	1719 Mar 29 15:46	8° <del>00</del> '20'56	0°44'09	retrograde	1727 Feb 21 02:34	17° <del>00</del> ' <del>00</del> '47'00	
min. Earth dist.	1719 Mar 30 08:04	8° <del>00</del> '19'10	17.36557 AU	opposition	1727 May 06 22:54	15° <del>00</del> ' <del>00</del> '46'09	0°22'06
direct	1719 Jun 14 08:36	6° <del>00</del> '15'00		min. Earth dist.	1727 May 07 04:39	15° <del>00</del> ' <del>00</del> '45'32	17.69441 AU
					1727 May 25 16:22	15° <del>00</del> ' <del>00</del> ' <del>00</del>	
conjunction	1719 Oct 04 15:20	10° <del>00</del> '45'57	0°38'45	direct	1727 Jul 23 05:21	13° <del>00</del> ' <del>00</del> '42'07	
minimum elong	1719 Oct 04 15:20	10° <del>00</del> '45'57	0°38'46		1727 Sep 17 01:17	15° <del>00</del> ' <del>00</del> ' <del>00</del>	
max. Earth dist.	1719 Oct 03 21:24	10° <del>00</del> '43'08	19.37854 AU	conjunction	1727 Nov 10 23:10	18° <del>00</del> ' <del>00</del> '04'37	0°18'17
retrograde	1720 Jan 19 22:58	15° <del>00</del> ' <del>00</del> '47'40		minimum elong	1727 Nov 10 23:11	18° <del>00</del> ' <del>00</del> '04'37	0°18'17
opposition	1720 Apr 02 17:24	13° <del>00</del> ' <del>00</del> '06'02	0°42'14	max. Earth dist.	1727 Nov 10 18:19	18° <del>00</del> ' <del>00</del> '03'53	19.72341 AU
min. Earth dist.	1720 Apr 03 09:42	13° <del>00</del> ' <del>00</del> '04'17	17.39314 AU	retrograde	1728 Feb 25 21:27	22° <del>00</del> ' <del>00</del> '20'12	
direct	1720 Jun 18 10:42	11° <del>00</del> ' <del>00</del> '00'18		opposition	1728 May 10 21:51	20° <del>00</del> ' <del>00</del> '19'30	0°18'34
				min. Earth dist.	1728 May 11 01:17	20° <del>00</del> ' <del>00</del> '19'08	17.75308 AU
conjunction	1720 Oct 08 16:18	15° <del>00</del> ' <del>00</del> '30'37	0°36'55	direct	1728 Jul 27 05:55	18° <del>00</del> ' <del>00</del> '15'50	
minimum elong	1720 Oct 08 16:18	15° <del>00</del> ' <del>00</del> '30'37	0°36'55				
max. Earth dist.	1720 Oct 07 22:24	15° <del>00</del> ' <del>00</del> '27'48	19.40824 AU	conjunction	1728 Nov 14 17:01	22° <del>00</del> ' <del>00</del> '36'57	0°15'04
retrograde	1721 Jan 23 23:17	19° <del>00</del> ' <del>00</del> '51'44		minimum elong	1728 Nov 14 17:01	22° <del>00</del> ' <del>00</del> '36'57	0°15'04
opposition	1721 Apr 07 18:58	17° <del>00</del> ' <del>00</del> '50'14	0°40'02	behind sun begin	1728 Nov 14 14:31	22° <del>00</del> ' <del>00</del> '36'34	
min. Earth dist.	1721 Apr 08 09:28	17° <del>00</del> ' <del>00</del> '48'41	17.42477 AU	behind sun end	1728 Nov 14 19:31	22° <del>00</del> ' <del>00</del> '37'19	
direct	1721 Jun 23 15:08	15° <del>00</del> ' <del>00</del> '44'43		max. Earth dist.	1728 Nov 14 13:40	22° <del>00</del> ' <del>00</del> '36'26	19.78393 AU
				retrograde	1729 Mar 01 15:15	26° <del>00</del> ' <del>00</del> '51'39	
conjunction	1721 Oct 13 16:37	20° <del>00</del> ' <del>00</del> '14'15	0°34'50	opposition	1729 May 15 20:33	24° <del>00</del> ' <del>00</del> '51'08	0°14'56
minimum elong	1721 Oct 13 16:37	20° <del>00</del> ' <del>00</del> '14'15	0°34'50	min. Earth dist.	1729 May 15 22:36	24° <del>00</del> ' <del>00</del> '50'56	17.81527 AU
max. Earth dist.	1721 Oct 13 01:08	20° <del>00</del> ' <del>00</del> '11'49	19.44178 AU	direct	1729 Aug 01 03:41	22° <del>00</del> ' <del>00</del> '47'52	
retrograde	1722 Jan 28 20:51	24° <del>00</del> ' <del>00</del> '34'43					
opposition	1722 Apr 12 20:32	22° <del>00</del> ' <del>00</del> '33'21	0°37'34	conjunction	1729 Nov 19 09:54	27° <del>00</del> ' <del>00</del> '07'32	0°11'47
min. Earth dist.	1722 Apr 13 10:31	22° <del>00</del> ' <del>00</del> '31'51	17.46011 AU	minimum elong	1729 Nov 19 09:54	27° <del>00</del> ' <del>00</del> '07'32	0°11'48
direct	1722 Jun 28 17:30	20° <del>00</del> ' <del>00</del> '28'03		behind sun begin	1729 Nov 19 05:14	27° <del>00</del> ' <del>00</del> '06'50	
				behind sun end	1729 Nov 19 14:34	27° <del>00</del> ' <del>00</del> '08'14	
conjunction	1722 Oct 18 16:00	24° <del>00</del> ' <del>00</del> '56'39	0°32'31	max. Earth dist.	1729 Nov 19 09:02	27° <del>00</del> ' <del>00</del> '07'24	19.84762 AU
minimum elong	1722 Oct 18 16:00	24° <del>00</del> ' <del>00</del> '56'39	0°32'32		1730 Jan 09 08:34	0° <del>00</del> ' <del>00</del> ' <del>00</del>	
max. Earth dist.	1722 Oct 18 00:48	24° <del>00</del> ' <del>00</del> '54'16	19.47911 AU	retrograde	1730 Mar 06 09:48	1° <del>00</del> ' <del>00</del> ' <del>00</del> '21'22	
retrograde	1723 Feb 02 19:37	29° <del>00</del> ' <del>00</del> '16'25			1730 May 04 21:17	30° <del>00</del> ' <del>00</del> ' <del>00</del> ' <del>00</del>	
opposition	1723 Apr 17 21:42	27° <del>00</del> ' <del>00</del> '15'09	0°34'52	opposition	1730 May 20 18:40	29° <del>00</del> ' <del>00</del> '21'03	0°11'14
min. Earth dist.	1723 Apr 18 09:54	27° <del>00</del> ' <del>00</del> '13'51	17.49932 AU	min. Earth dist.	1730 May 20 18:08	29° <del>00</del> ' <del>00</del> '21'06	17.88009 AU
direct	1723 Jul 03 21:24	25° <del>00</del> ' <del>00</del> '10'04		direct	1730 Aug 06 02:31	27° <del>00</del> ' <del>00</del> '18'12	
					1730 Oct 28 08:46	0° <del>00</del> ' <del>00</del> ' <del>00</del>	
conjunction	1723 Oct 23 14:35	29° <del>00</del> ' <del>00</del> '37'38	0°29'59	conjunction	1730 Nov 24 01:58	1° <del>00</del> ' <del>00</del> ' <del>00</del> '36'24	0°08'27
minimum elong	1723 Oct 23 14:35	29° <del>00</del> ' <del>00</del> '37'38	0°29'59	minimum elong	1730 Nov 24 01:58	1° <del>00</del> ' <del>00</del> ' <del>00</del> '36'24	0°08'27
max. Earth dist.	1723 Oct 23 02:04	29° <del>00</del> ' <del>00</del> '35'40	19.52020 AU	behind sun begin	1730 Nov 23 20:11	1° <del>00</del> ' <del>00</del> ' <del>00</del> '35'32	
	1723 Oct 29 13:17	0° <del>00</del> ' <del>00</del> ' <del>00</del>		behind sun end	1730 Nov 24 07:45	1° <del>00</del> ' <del>00</del> ' <del>00</del> '37'16	
retrograde	1724 Feb 07 15:54	3° <del>00</del> ' <del>00</del> '56'37		max. Earth dist.	1730 Nov 24 02:46	1° <del>00</del> ' <del>00</del> ' <del>00</del> '36'31	19.91353 AU
opposition	1724 Apr 21 22:37	1° <del>00</del> ' <del>00</del> '55'27	0°31'56	retrograde	1731 Mar 11 02:50	5° <del>00</del> ' <del>00</del> ' <del>00</del> '49'21	
min. Earth dist.	1724 Apr 22 09:43	1° <del>00</del> ' <del>00</del> '54'16	17.54212 AU	opposition	1731 May 25 16:13	3° <del>00</del> ' <del>00</del> ' <del>00</del> '49'14	0°07'30
	1724 Jun 18 20:15	30° <del>00</del> ' <del>00</del> ' <del>00</del> ' <del>00</del>		min. Earth dist.	1731 May 25 14:43	3° <del>00</del> ' <del>00</del> ' <del>00</del> '49'23	17.94696 AU
direct	1724 Jul 08 00:13	29° <del>00</del> ' <del>00</del> '50'36		direct	1731 Aug 10 22:44	1° <del>00</del> ' <del>00</del> ' <del>00</del> '46'48	
	1724 Jul 27 00:06	0° <del>00</del> ' <del>00</del> ' <del>00</del>					
conjunction	1724 Oct 27 12:08	4° <del>00</del> ' <del>00</del> '17'01	0°27'17	conjunction	1731 Nov 28 17:11	6° <del>00</del> ' <del>00</del> ' <del>00</del> '43'31	0°05'06
minimum elong	1724 Oct 27 12:08	4° <del>00</del> ' <del>00</del> '17'01	0°27'17	minimum elong	1731 Nov 28 17:12	6° <del>00</del> ' <del>00</del> ' <del>00</del> '43'31	0°05'06
max. Earth dist.	1724 Oct 27 00:18	4° <del>00</del> ' <del>00</del> '15'10	19.56497 AU	behind sun begin	1731 Nov 28 10:49	6° <del>00</del> ' <del>00</del> ' <del>00</del> '02'34	
retrograde	1725 Feb 11 12:22	8° <del>00</del> ' <del>00</del> '35'11		behind sun end	1731 Nov 28 23:34	6° <del>00</del> ' <del>00</del> ' <del>00</del> '04'28	
opposition	1725 Apr 26 23:04	6° <del>00</del> ' <del>00</del> '34'06	0°28'49	max. Earth dist.	1731 Nov 28 19:55	6° <del>00</del> ' <del>00</del> ' <del>00</del> '03'53	19.98108 AU
min. Earth dist.	1725 Apr 27 08:27	6° <del>00</del> ' <del>00</del> '33'07	17.58885 AU	retrograde	1732 Mar 14 20:24	10° <del>00</del> ' <del>00</del> ' <del>00</del> '47'35	
direct	1725 Jul 13 02:56	4° <del>00</del> ' <del>00</del> '29'29		opposition	1732 May 29 13:07	8° <del>00</del> ' <del>00</del> ' <del>00</del> '47'39	0°03'44
				min. Earth dist.	1732 May 29 09:05	8° <del>00</del> ' <del>00</del> ' <del>00</del> '47'04	18.01485 AU
conjunction	1725 Nov 01 08:51	8° <del>00</del> ' <del>00</del> '54'40	0°24'25	direct	1732 Aug 14 20:11	6° <del>00</del> ' <del>00</del> ' <del>00</del> '43'39	
minimum elong	1725 Nov 01 08:51	8° <del>00</del> ' <del>00</del> '54'40	0°24'24				
max. Earth dist.	1725 Oct 31 23:56	8° <del>00</del> ' <del>00</del> '53'17	19.61372 AU	conjunction	1732 Dec 02 07:34	10° <del>00</del> ' <del>00</del> ' <del>00</del> '47'28'51	0°01'42
retrograde	1726 Feb 16 07:51	13° <del>00</del> ' <del>00</del> ' <del>00</del> '11'59		minimum elong	1732 Dec 02 07:34	10° <del>00</del> ' <del>00</del> ' <del>00</del> '47'28'51	0°01'42
opposition	1726 May 01 23:14	11° <del>00</del> ' <del>00</del> '10'13	0°25'32	behind sun begin	1732 Dec 02 01:00	10° <del>00</del> ' <del>00</del> ' <del>00</del> '47'27'52	
min. Earth dist.	1726 May 02 06:42	11° <del>00</del> ' <del>00</del> '10'13	17.63952 AU	behind sun end	1732 Dec 02 14:07	10° <del>00</del> ' <del>00</del> ' <del>00</del> '47'29'49	
direct	1726 Jul 18 05:09	9° <del>00</del> ' <del>00</del> '06'41		max. Earth dist.	1732 Dec 02 11:59	10° <del>00</del> ' <del>00</del> ' <del>00</del> '47'29'29	20.04918 AU

retrograde	1733 Mar 19 12:16	14° $\overline{A}$ 40'03		conjunction	1740 Jan 01 13:35	10° $\overline{B}$ 33'38	0°-20'-40
desc. node	1733 May 31 10:10	12° $\overline{A}$ 47'37		minimum elong	1740 Jan 01 13:35	10° $\overline{B}$ 33'38	0°20'41
opposition	1733 Jun 03 09:37	12° $\overline{A}$ 40'17	0°00'-1	max. Earth dist.	1740 Jan 02 03:54	10° $\overline{B}$ 35'46	20.50291 AU
min. Earth dist.	1733 Jun 03 04:56	12° $\overline{A}$ 40'46	18.08314 AU	retrograde	1740 Apr 18 12:24	14° $\overline{B}$ 39'07	
direct	1733 Aug 19 15:20	10° $\overline{A}$ 38'41		opposition	1740 Jul 04 12:46	12° $\overline{B}$ 39'55	0°-24'-26
				min. Earth dist.	1740 Jul 03 21:07	12° $\overline{B}$ 41'29	18.53304 AU
conjunction	1733 Dec 06 21:08	14° $\overline{A}$ 52'22	0°-1'-46	direct	1740 Sep 19 14:43	10° $\overline{B}$ 40'38	
minimum elong	1733 Dec 06 21:09	14° $\overline{A}$ 52'22	0°01'47				
behind sun begin	1733 Dec 06 14:36	14° $\overline{A}$ 51'23		conjunction	1741 Jan 04 21:40	14° $\overline{B}$ 44'05	0°-23'-27
behind sun end	1733 Dec 07 03:42	14° $\overline{A}$ 53'20		minimum elong	1741 Jan 04 21:40	14° $\overline{B}$ 44'05	0°23'28
max. Earth dist.	1733 Dec 07 03:01	14° $\overline{A}$ 53'14	20.11743 AU	max. Earth dist.	1741 Jan 05 14:14	14° $\overline{B}$ 46'33	20.56289 AU
retrograde	1734 Mar 24 04:43	19° $\overline{A}$ 02'41		retrograde	1741 Apr 22 21:53	18° $\overline{B}$ 48'54	
opposition	1734 Jun 08 05:21	17° $\overline{A}$ 03'05	0°-3'-45	min. Earth dist.	1741 Jul 08 11:24	16° $\overline{B}$ 51'25	18.59255 AU
min. Earth dist.	1734 Jun 07 22:07	17° $\overline{A}$ 03'49	18.15112 AU	opposition	1741 Jul 09 03:35	16° $\overline{B}$ 49'47	0°-27'-26
direct	1734 Aug 24 11:31	15° $\overline{A}$ 01'52		direct	1741 Sep 24 03:18	14° $\overline{B}$ 50'50	
conjunction	1734 Dec 11 09:54	19° $\overline{A}$ 14'01	0°-5'-7	conjunction	1742 Jan 09 05:10	18° $\overline{B}$ 53'01	0°-26'-5
minimum elong	1734 Dec 11 09:54	19° $\overline{A}$ 14'01	0°05'08	minimum elong	1742 Jan 09 05:10	18° $\overline{B}$ 53'01	0°26'05
behind sun begin	1734 Dec 11 03:32	19° $\overline{A}$ 13'05		max. Earth dist.	1742 Jan 09 22:26	18° $\overline{B}$ 55'35	20.62184 AU
behind sun end	1734 Dec 11 16:15	19° $\overline{A}$ 14'58		retrograde	1742 Apr 27 10:12	22° $\overline{B}$ 57'14	
max. Earth dist.	1734 Dec 11 17:29	19° $\overline{A}$ 15'09	20.18494 AU	opposition	1742 Jul 13 17:30	20° $\overline{B}$ 58'12	0°-30'-16
retrograde	1735 Mar 28 18:45	23° $\overline{A}$ 23'30		min. Earth dist.	1742 Jul 12 23:07	21° $\overline{B}$ 00'03	18.65083 AU
opposition	1735 Jun 13 00:32	21° $\overline{A}$ 24'00	0°-7'-26	direct	1742 Sep 28 15:58	18° $\overline{B}$ 59'35	
min. Earth dist.	1735 Jun 12 16:57	21° $\overline{A}$ 24'47	18.21818 AU				
direct	1735 Aug 29 05:31	19° $\overline{A}$ 23'10		conjunction	1743 Jan 13 12:13	23° $\overline{B}$ 00'36	0°-28'-34
				minimum elong	1743 Jan 13 12:13	23° $\overline{B}$ 00'36	0°28'35
conjunction	1735 Dec 15 21:51	23° $\overline{A}$ 33'48	0°-8'-24	max. Earth dist.	1743 Jan 14 07:33	23° $\overline{B}$ 03'27	20.67916 AU
minimum elong	1735 Dec 15 21:52	23° $\overline{A}$ 33'48	0°08'26	retrograde	1743 May 01 19:05	27° $\overline{B}$ 04'16	
behind sun begin	1735 Dec 15 16:06	23° $\overline{A}$ 32'57		opposition	1743 Jul 18 06:57	25° $\overline{B}$ 05'20	0°-32'-55
behind sun end	1735 Dec 16 03:38	23° $\overline{A}$ 34'39		min. Earth dist.	1743 Jul 17 12:17	25° $\overline{B}$ 07'12	18.70720 AU
max. Earth dist.	1735 Dec 16 06:26	23° $\overline{A}$ 35'04	20.25137 AU	direct	1743 Oct 03 02:56	23° $\overline{B}$ 07'04	
retrograde	1736 Apr 01 10:03	27° $\overline{A}$ 42'24					
opposition	1736 Jun 16 18:43	25° $\overline{A}$ 43'00	0°-11'-3	conjunction	1744 Jan 17 18:43	27° $\overline{B}$ 06'58	0°-30'-54
min. Earth dist.	1736 Jun 16 08:44	25° $\overline{A}$ 44'01	18.28383 AU	minimum elong	1744 Jan 17 18:43	27° $\overline{B}$ 06'57	0°30'54
direct	1736 Sep 02 00:00	23° $\overline{A}$ 42'30		max. Earth dist.	1744 Jan 18 14:22	27° $\overline{B}$ 09'51	20.73442 AU
					1744 Mar 12 07:19	0° $\approx$	
conjunction	1736 Dec 19 09:04	27° $\overline{A}$ 51'38	0°-11'-37	retrograde	1744 May 05 06:16	1° $\approx$ 10'08	
minimum elong	1736 Dec 19 09:04	27° $\overline{A}$ 51'38	0°11'37		1744 Jun 30 22:24	30° $\overline{R}$ $\overline{B}$	
behind sun begin	1736 Dec 19 04:20	27° $\overline{A}$ 50'56		opposition	1744 Jul 21 19:39	29° $\overline{B}$ 11'18	0°-35'-24
behind sun end	1736 Dec 19 13:48	27° $\overline{A}$ 52'20		min. Earth dist.	1744 Jul 20 23:13	29° $\overline{B}$ 13'21	18.76123 AU
max. Earth dist.	1736 Dec 19 19:27	27° $\overline{A}$ 53'11	20.31623 AU	direct	1744 Oct 06 13:37	27° $\overline{B}$ 13'22	
	1737 Jan 25 14:39	0° $\overline{B}$			1744 Dec 31 05:10	0° $\approx$	
retrograde	1737 Apr 05 22:17	1° $\overline{B}$ 59'25					
opposition	1737 Jun 21 12:32	0° $\overline{B}$ 00'05	0°-14'-35	conjunction	1745 Jan 21 00:59	1° $\approx$ 12'13	0°-33'-3
min. Earth dist.	1737 Jun 21 02:13	0° $\overline{B}$ 01'08	18.34800 AU	minimum elong	1745 Jan 21 00:59	1° $\approx$ 12'13	0°33'05
	1737 Jun 21 13:21	30° $\overline{R}$ $\overline{A}$		max. Earth dist.	1745 Jan 21 22:27	1° $\approx$ 15'22	20.78696 AU
direct	1737 Sep 06 16:35	27° $\overline{A}$ 59'54		retrograde	1745 May 09 15:07	5° $\approx$ 14'56	
	1737 Nov 16 16:11	0° $\overline{B}$		min. Earth dist.	1745 Jul 25 11:32	3° $\approx$ 18'16	18.81227 AU
				opposition	1745 Jul 26 08:02	3° $\approx$ 16'13	0°-37'-42
conjunction	1737 Dec 23 19:15	2° $\overline{B}$ 07'32	0°-14'-44	direct	1745 Oct 10 23:22	1° $\approx$ 18'36	
minimum elong	1737 Dec 23 19:15	2° $\overline{B}$ 07'32	0°14'46				
behind sun begin	1737 Dec 23 16:24	2° $\overline{B}$ 07'07		conjunction	1746 Jan 25 06:46	5° $\approx$ 16'28	0°-35'-3
behind sun end	1737 Dec 23 22:06	2° $\overline{B}$ 07'57		minimum elong	1746 Jan 25 06:46	5° $\approx$ 16'28	0°35'04
max. Earth dist.	1737 Dec 24 06:37	2° $\overline{B}$ 09'13	20.37973 AU	max. Earth dist.	1746 Jan 26 04:09	5° $\approx$ 19'35	20.83632 AU
retrograde	1738 Apr 10 12:35	6° $\overline{B}$ 14'30		retrograde	1746 May 14 01:28	9° $\approx$ 18'48	
opposition	1738 Jun 26 05:24	4° $\overline{B}$ 15'12	0°-18'00	opposition	1746 Jul 30 19:46	7° $\approx$ 20'10	0°-39'-47
min. Earth dist.	1738 Jun 25 16:36	4° $\overline{B}$ 16'30	18.41081 AU	min. Earth dist.	1746 Jul 29 22:00	7° $\approx$ 22'20	18.85980 AU
direct	1738 Sep 11 09:22	2° $\overline{B}$ 15'19		direct	1746 Oct 15 08:34	5° $\approx$ 22'49	
conjunction	1738 Dec 28 04:49	6° $\overline{B}$ 21'30	0°-17'-46	conjunction	1747 Jan 29 12:33	9° $\approx$ 19'47	0°-36'-52
minimum elong	1738 Dec 28 04:49	6° $\overline{B}$ 21'30	0°17'47	minimum elong	1747 Jan 29 12:33	9° $\approx$ 19'47	0°36'53
max. Earth dist.	1738 Dec 28 18:17	6° $\overline{B}$ 23'30	20.44181 AU	max. Earth dist.	1747 Jan 30 11:18	9° $\approx$ 23'06	20.88167 AU
retrograde	1739 Apr 14 23:12	10° $\overline{B}$ 27'42		retrograde	1747 May 18 09:54	13° $\approx$ 21'45	
opposition	1739 Jun 30 21:28	8° $\overline{B}$ 28'27	0°-21'-17	min. Earth dist.	1747 Aug 03 09:25	11° $\approx$ 25'19	18.90301 AU
min. Earth dist.	1739 Jun 30 08:17	8° $\overline{B}$ 29'47	18.47242 AU	opposition	1747 Aug 04 06:54	11° $\approx$ 23'11	0°-41'-41
direct	1739 Sep 15 23:51	6° $\overline{B}$ 28'51		direct	1747 Oct 19 17:10	9° $\approx$ 26'06	

conjunction	1748 Feb 02 17:58	13° <del>22</del> '13	0°-38'-29	opposition	1755 Sep 06 07:43	13° <del>18</del> '39	0°-48'-47
minimum elong	1748 Feb 02 17:58	13° <del>22</del> '13	0°38'30	direct	1755 Nov 20 23:50	11° <del>18</del> '22	20
max. Earth dist.	1748 Feb 03 16:07	13° <del>25</del> '26	20.92258 AU				
	1748 Mar 02 14:20	15° <del>22</del> '		conjunction	1756 Mar 05 08:18	15° <del>14</del> '23	0°-44'-7
retrograde	1748 May 21 19:48	17° <del>23</del> '52		minimum elong	1756 Mar 05 08:18	15° <del>14</del> '23	0°44'07
opposition	1748 Aug 07 17:39	15° <del>25</del> '19	0°-43'-22	max. Earth dist.	1756 Mar 06 07:13	15° <del>17</del> '39	21.08139 AU
min. Earth dist.	1748 Aug 06 19:21	15° <del>27</del> '32	18.94154 AU	retrograde	1756 Jun 23 12:47	19° <del>15</del> '13	
	1748 Aug 18 09:42	15° <del>28</del> '		opposition	1756 Sep 09 15:16	17° <del>16</del> '06	0°-48'-38
direct	1748 Oct 23 01:35	13° <del>28</del> '26		min. Earth dist.	1756 Sep 08 17:17	17° <del>18</del> '18	19.08333 AU
	1748 Dec 23 14:48	15° <del>28</del> '		direct	1756 Nov 24 04:03	15° <del>19</del> '49	
conjunction	1749 Feb 05 23:11	17° <del>23</del> '46	0°-39'-55	conjunction	1757 Mar 09 13:14	19° <del>11</del> '48	0°-43'-53
minimum elong	1749 Feb 05 23:11	17° <del>23</del> '46	0°39'55	minimum elong	1757 Mar 09 13:14	19° <del>11</del> '48	0°43'54
max. Earth dist.	1749 Feb 06 22:27	17° <del>27</del> '09	20.95845 AU	max. Earth dist.	1757 Mar 10 12:56	19° <del>15</del> '11	21.08334 AU
retrograde	1749 May 26 03:38	21° <del>25</del> '09		retrograde	1757 Jun 27 20:15	23° <del>12</del> '49	
min. Earth dist.	1749 Aug 11 06:05	19° <del>28</del> '46	18.97483 AU	opposition	1757 Sep 13 22:39	21° <del>13</del> '40	0°-48'-15
opposition	1749 Aug 12 04:01	19° <del>26</del> '35	0°-44'-50	min. Earth dist.	1757 Sep 13 01:08	21° <del>15</del> '50	19.08322 AU
direct	1749 Oct 27 09:06	17° <del>29</del> '52		direct	1757 Nov 28 09:37	19° <del>17</del> '28	
conjunction	1750 Feb 10 04:14	21° <del>24</del> '28	0°-41'-9	conjunction	1758 Mar 13 18:28	23° <del>09</del> '27	0°-43'-26
minimum elong	1750 Feb 10 04:14	21° <del>24</del> '28	0°41'10	minimum elong	1758 Mar 13 18:28	23° <del>09</del> '27	0°43'27
max. Earth dist.	1750 Feb 11 02:41	21° <del>27</del> '43	20.98924 AU	max. Earth dist.	1758 Mar 14 16:44	23° <del>12</del> '38	21.08128 AU
retrograde	1750 May 30 13:03	25° <del>25</del> '35		retrograde	1758 Jul 02 05:48	27° <del>10</del> '44	
opposition	1750 Aug 16 13:40	23° <del>26</del> '58	0°-46'-4	min. Earth dist.	1758 Sep 17 08:48	25° <del>13</del> '39	19.07901 AU
min. Earth dist.	1750 Aug 15 15:17	23° <del>29</del> '11	19.00311 AU	opposition	1758 Sep 18 05:45	25° <del>11</del> '33	0°-47'-38
direct	1750 Oct 31 16:59	21° <del>30</del> '21		direct	1758 Dec 02 13:49	23° <del>15</del> '21	
conjunction	1751 Feb 14 09:09	25° <del>24</del> '18	0°-42'-10	conjunction	1759 Mar 18 00:12	27° <del>07</del> '29	0°-42'-47
minimum elong	1751 Feb 14 09:09	25° <del>24</del> '18	0°42'10	minimum elong	1759 Mar 18 00:12	27° <del>07</del> '29	0°42'49
max. Earth dist.	1751 Feb 15 08:38	25° <del>27</del> '41	21.01493 AU	max. Earth dist.	1759 Mar 18 22:48	27° <del>10</del> '43	21.07472 AU
retrograde	1751 Jun 03 20:22	29° <del>25</del> '12			1759 May 13 00:23	0° <del>09</del> '	
opposition	1751 Aug 20 22:54	27° <del>26</del> '30	0°-47'-4	retrograde	1759 Jul 06 13:43	1° <del>09</del> '05	
min. Earth dist.	1751 Aug 20 00:55	27° <del>28</del> '42	19.02640 AU		1759 Sep 01 01:51	30° <del>18</del> '	
direct	1751 Nov 04 23:34	25° <del>29</del> '58		opposition	1759 Sep 22 12:53	29° <del>09</del> '52	0°-46'-48
				min. Earth dist.	1759 Sep 21 16:44	29° <del>11</del> '54	19.07002 AU
conjunction	1752 Feb 18 13:42	29° <del>23</del> '20	0°-42'-59	direct	1759 Dec 06 18:48	27° <del>13</del> '42	
minimum elong	1752 Feb 18 13:42	29° <del>23</del> '20	0°43'00		1760 Mar 01 17:53	0° <del>09</del> '	
max. Earth dist.	1752 Feb 19 12:26	29° <del>26</del> '36	21.03604 AU				
	1752 Feb 29 05:11	0° <del>24</del> '		conjunction	1760 Mar 21 06:04	1° <del>06</del> '02	0°-41'-56
retrograde	1752 Jun 07 05:01	3° <del>24</del> '05		minimum elong	1760 Mar 21 06:03	1° <del>06</del> '02	0°41'57
min. Earth dist.	1752 Aug 23 09:18	1° <del>27</del> '31	19.04542 AU	max. Earth dist.	1760 Mar 22 02:51	1° <del>09</del> '00	21.06335 AU
opposition	1752 Aug 24 07:41	1° <del>25</del> '17	0°-47'-51	retrograde	1760 Jul 09 23:52	5° <del>08</del> '01	
	1752 Oct 03 05:05	30° <del>28</del> '		opposition	1760 Sep 25 20:05	3° <del>08</del> '44	0°-45'-45
direct	1752 Nov 08 06:30	29° <del>28</del> '48		min. Earth dist.	1760 Sep 25 00:55	3° <del>10</del> '40	19.05606 AU
	1752 Dec 13 09:46	0° <del>28</del> '		direct	1760 Dec 09 23:44	1° <del>12</del> '32	
conjunction	1753 Feb 21 18:21	3° <del>21</del> '41	0°-43'-35	conjunction	1761 Mar 25 12:42	5° <del>05</del> '11	0°-40'-52
minimum elong	1753 Feb 21 18:21	3° <del>21</del> '41	0°43'36	minimum elong	1761 Mar 25 12:42	5° <del>05</del> '11	0°40'53
max. Earth dist.	1753 Feb 22 18:15	3° <del>25</del> '07	21.05295 AU	max. Earth dist.	1761 Mar 26 09:27	5° <del>08</del> '09	21.04664 AU
retrograde	1753 Jun 11 12:18	7° <del>22</del> '21		retrograde	1761 Jul 14 08:11	9° <del>07</del> '34	
opposition	1753 Aug 28 16:05	5° <del>23</del> '27	0°-48'-23	min. Earth dist.	1761 Sep 29 09:06	7° <del>10</del> '02	19.03651 AU
min. Earth dist.	1753 Aug 27 17:56	5° <del>25</del> '39	19.06043 AU	opposition	1761 Sep 30 03:11	7° <del>08</del> '13	0°-44'-28
direct	1753 Nov 12 12:38	3° <del>27</del> '01		direct	1761 Dec 14 04:41	5° <del>11</del> '56	
conjunction	1754 Feb 25 22:51	7° <del>19</del> '31	0°-43'-58	conjunction	1762 Mar 29 19:41	9° <del>04</del> '57	0°-39'-36
minimum elong	1754 Feb 25 22:51	7° <del>19</del> '31	0°43'59	minimum elong	1762 Mar 29 19:41	9° <del>04</del> '57	0°39'37
max. Earth dist.	1754 Feb 26 21:55	7° <del>22</del> '49	21.06615 AU	max. Earth dist.	1762 Mar 30 14:06	9° <del>07</del> '35	21.02435 AU
retrograde	1754 Jun 15 20:46	11° <del>20</del> '10		retrograde	1762 Jul 18 18:25	13° <del>07</del> '48	
min. Earth dist.	1754 Sep 01 01:45	9° <del>23</del> '24	19.07181 AU	opposition	1762 Oct 04 10:25	11° <del>08</del> '18	0°-42'-57
opposition	1754 Sep 02 00:07	9° <del>21</del> '10	0°-48'-42	min. Earth dist.	1762 Oct 03 17:42	11° <del>10</del> '00	19.01133 AU
direct	1754 Nov 16 17:59	7° <del>24</del> '47		direct	1762 Dec 18 10:23	9° <del>11</del> '53	
conjunction	1755 Mar 02 03:36	11° <del>17</del> '01	0°-44'-9	conjunction	1763 Apr 03 03:14	13° <del>05</del> '21	0°-38'-8
minimum elong	1755 Mar 02 03:36	11° <del>17</del> '01	0°44'10	minimum elong	1763 Apr 03 03:14	13° <del>05</del> '22	0°38'09
max. Earth dist.	1755 Mar 03 03:36	11° <del>20</del> '27	21.07557 AU	max. Earth dist.	1763 Apr 03 21:20	13° <del>07</del> '57	20.99631 AU
retrograde	1755 Jun 20 03:56	15° <del>17</del> '42		retrograde	1763 Jul 23 03:03	17° <del>08</del> '39	
min. Earth dist.	1755 Sep 05 09:41	13° <del>20</del> '52	19.07937 AU	opposition	1763 Oct 08 17:31	15° <del>09</del> '01	0°-41'-14

min. Earth dist.	1763 Oct 08 01:54	15°♈10'36	18.98048 AU	max. Earth dist.	1771 May 06 18:41	15°♏39'55	20.63239 AU
direct	1763 Dec 22 16:05	13°♈12'25		retrograde	1771 Aug 25 16:32	19°♏47'22	
				opposition	1771 Nov 10 08:01	17°♏46'19	0°-20'-41
conjunction	1764 Apr 06 11:04	17°♈06'23	0°-36'-29	min. Earth dist.	1771 Nov 10 02:04	17°♏46'56	18.60414 AU
minimum elong	1764 Apr 06 11:04	17°♈06'23	0°36'31	direct	1772 Jan 23 23:12	15°♏47'35	
max. Earth dist.	1764 Apr 07 02:49	17°♈08'38	20.96308 AU				
retrograde	1764 Jul 26 12:43	21°♈10'12		conjunction	1772 May 10 00:24	19°♏48'44	0°-17'-15
min. Earth dist.	1764 Oct 11 10:39	19°♈11'48	18.94486 AU	minimum elong	1772 May 10 00:24	19°♏48'44	0°17'16
opposition	1764 Oct 12 00:47	19°♈10'21	0°-39'-18	max. Earth dist.	1772 May 10 05:11	19°♏49'25	20.57568 AU
direct	1764 Dec 25 21:58	17°♈13'32		retrograde	1772 Aug 29 05:35	23°♏58'08	
				opposition	1772 Nov 13 17:24	21°♏56'58	0°-17'-24
conjunction	1765 Apr 10 19:28	21°♈08'06	0°-34'-38	min. Earth dist.	1772 Nov 13 13:35	21°♏57'22	18.54638 AU
minimum elong	1765 Apr 10 19:28	21°♈08'06	0°34'39	direct	1773 Jan 27 07:05	19°♏57'57	
max. Earth dist.	1765 Apr 11 11:05	21°♈10'20	20.92521 AU				
retrograde	1765 Jul 30 22:26	25°♈12'27		conjunction	1773 May 14 14:49	24°♏00'23	0°-14'-15
opposition	1765 Oct 16 08:02	23°♈12'24	0°-37'-10	minimum elong	1773 May 14 14:49	24°♏00'23	0°14'16
min. Earth dist.	1765 Oct 15 18:51	23°♈13'45	18.90483 AU	behind sun begin	1773 May 14 11:48	23°♏59'58	
direct	1765 Dec 30 04:29	21°♈15'19		behind sun end	1773 May 14 17:49	24°♏00'49	
				max. Earth dist.	1773 May 14 18:56	24°♏00'59	20.51676 AU
conjunction	1766 Apr 15 04:23	25°♈10'34	0°-32'-37	retrograde	1773 Sep 02 20:11	28°♏10'39	
minimum elong	1766 Apr 15 04:23	25°♈10'34	0°32'38	opposition	1773 Nov 18 03:12	26°♏09'24	0°-14'-1
max. Earth dist.	1766 Apr 15 17:36	25°♈12'27	20.88340 AU	min. Earth dist.	1773 Nov 18 00:24	26°♏09'42	18.48616 AU
retrograde	1766 Aug 04 07:42	29°♈15'30		direct	1774 Jan 31 17:08	24°♏10'05	
opposition	1766 Oct 20 15:19	27°♈15'14	0°-34'-51				
min. Earth dist.	1766 Oct 20 03:42	27°♈16'25	18.86128 AU	conjunction	1774 May 19 06:04	28°♏13'51	0°-11'-9
direct	1767 Jan 03 10:20	25°♈17'53		minimum elong	1774 May 19 06:03	28°♏13'51	0°11'09
				behind sun begin	1774 May 19 01:07	28°♏13'09	
conjunction	1767 Apr 19 14:02	29°♈13'54	0°-30'-25	behind sun end	1774 May 19 11:00	28°♏14'33	
minimum elong	1767 Apr 19 14:02	29°♈13'54	0°30'26	max. Earth dist.	1774 May 19 07:00	28°♏13'59	20.45529 AU
max. Earth dist.	1767 Apr 20 03:04	29°♈15'46	20.83819 AU		1774 Jun 19 10:42	0°♏	
	1767 May 03 00:33	0°♏		retrograde	1774 Sep 07 10:15	2°♏25'00	
retrograde	1767 Aug 08 18:22	3°♏19'27		opposition	1774 Nov 22 13:36	0°♏23'38	0°-10'-32
opposition	1767 Oct 24 22:50	1°♏19'00	0°-32'-20	min. Earth dist.	1774 Nov 22 13:20	0°♏23'39	18.42343 AU
min. Earth dist.	1767 Oct 24 11:59	1°♏20'07	18.81453 AU		1774 Dec 01 23:37	30°♏	
	1767 Nov 29 00:46	30°♏		direct	1775 Feb 05 02:27	28°♏23'58	
direct	1768 Jan 07 17:34	29°♈21'23			1775 Apr 08 13:23	0°♏	
	1768 Feb 15 12:58	0°♏					
conjunction	1768 Apr 22 23:58	3°♏18'14	0°-28'-4	conjunction	1775 May 23 22:21	2°♏29'08	0°-7'-58
minimum elong	1768 Apr 22 23:58	3°♏18'14	0°28'05	minimum elong	1775 May 23 22:21	2°♏29'08	0°07'58
max. Earth dist.	1768 Apr 23 10:39	3°♏19'46	20.79019 AU	behind sun begin	1775 May 23 16:21	2°♏28'16	
retrograde	1768 Aug 12 04:26	7°♏24'29		behind sun end	1775 May 24 04:22	2°♏29'59	
opposition	1768 Oct 28 06:42	5°♏23'50	0°-29'-39	max. Earth dist.	1775 May 23 22:18	2°♏29'07	20.39125 AU
min. Earth dist.	1768 Oct 27 21:25	5°♏24'48	18.76527 AU	retrograde	1775 Sep 12 02:20	6°♏41'08	
direct	1769 Jan 10 23:44	3°♏25'56		opposition	1775 Nov 27 00:33	4°♏39'39	0°-6'-57
				min. Earth dist.	1775 Nov 27 01:15	4°♏39'34	18.35808 AU
conjunction	1769 Apr 27 11:00	7°♏23'44	0°-25'-34	direct	1776 Feb 09 14:17	2°♏39'37	
minimum elong	1769 Apr 27 11:00	7°♏23'44	0°25'35				
max. Earth dist.	1769 Apr 27 21:28	7°♏25'14	20.73972 AU	conjunction	1776 May 27 15:15	6°♏46'11	0°-4'-43
retrograde	1769 Aug 16 16:02	11°♏30'41		minimum elong	1776 May 27 15:15	6°♏46'11	0°04'44
opposition	1769 Nov 01 14:41	9°♏29'54	0°-26'-49	behind sun begin	1776 May 27 08:39	6°♏45'14	
min. Earth dist.	1769 Nov 01 06:10	9°♏30'47	18.71361 AU	behind sun end	1776 May 27 21:50	6°♏47'07	
direct	1770 Jan 15 07:38	7°♏31'43		max. Earth dist.	1776 May 27 12:02	6°♏45'45	20.32478 AU
				retrograde	1776 Sep 15 17:13	10°♏59'05	
conjunction	1770 May 01 22:38	11°♏30'33	0°-22'-56	opposition	1776 Nov 30 12:11	8°♏57'25	0°-3'-18
minimum elong	1770 May 01 22:38	11°♏30'33	0°22'56	min. Earth dist.	1776 Nov 30 15:30	8°♏57'04	18.29060 AU
max. Earth dist.	1770 May 02 06:29	11°♏31'40	20.68710 AU	direct	1777 Feb 13 01:04	6°♏56'59	
	1770 Jul 12 13:42	15°♏					
retrograde	1770 Aug 21 03:39	15°♏38'17		conjunction	1777 Jun 01 09:21	11°♏04'59	0°-1'-23
	1770 Sep 30 08:11	15°♏		minimum elong	1777 Jun 01 09:20	11°♏04'59	0°01'23
opposition	1770 Nov 05 23:12	13°♏37'20	0°-23'-49	behind sun begin	1777 Jun 01 02:35	11°♏04'01	
min. Earth dist.	1770 Nov 05 16:28	13°♏38'02	18.65995 AU	behind sun end	1777 Jun 01 16:06	11°♏05'58	
direct	1771 Jan 19 14:29	11°♏38'52		max. Earth dist.	1777 Jun 01 05:06	11°♏04'24	20.25645 AU
	1771 Apr 25 06:04	15°♏		retrograde	1777 Sep 20 10:44	15°♏18'45	
conjunction	1771 May 06 11:08	15°♏38'50	0°-20'-9	asc. node	1777 Oct 28 22:33	14°♏42'05	
minimum elong	1771 May 06 11:08	15°♏38'50	0°20'11	opposition	1777 Dec 05 00:03	13°♏16'55	0°00'22
				min. Earth dist.	1777 Dec 05 04:16	13°♏16'28	18.22149 AU
				direct	1778 Feb 17 14:28	11°♏16'03	

conjunction	1778 Jun 06 04:07	15°II25'32	0°02'03	direct	1785 Mar 20 02:02	12°☾19'18	
minimum elong	1778 Jun 06 04:06	15°II25'32	0°02'02				
behind sun begin	1778 Jun 05 21:20	15°II24'34		conjunction	1785 Jul 08 14:05	16°☾39'31	0°24'27
behind sun end	1778 Jun 06 10:52	15°II26'31		minimum elong	1785 Jul 08 14:05	16°☾39'31	0°24'27
max. Earth dist.	1778 Jun 05 20:54	15°II24'30	20.18684 AU	max. Earth dist.	1785 Jul 07 20:39	16°☾36'53	19.72770 AU
retrograde	1778 Sep 25 02:36	19°II40'09		retrograde	1785 Oct 26 17:16	20°☾59'49	
opposition	1778 Dec 09 12:45	17°II38'09	0°04'05	opposition	1786 Jan 08 22:56	18°☾57'05	0°28'47
min. Earth dist.	1778 Dec 09 19:29	17°II37'26	18.15165 AU	min. Earth dist.	1786 Jan 09 13:18	18°☾55'32	17.69951 AU
direct	1779 Feb 22 02:44	15°II36'50		direct	1786 Mar 24 21:54	16°☾53'05	
conjunction	1779 Jun 10 23:37	19°II47'49	0°05'24	conjunction	1786 Jul 13 15:25	21°☾14'49	0°27'17
minimum elong	1779 Jun 10 23:37	19°II47'49	0°05'24	minimum elong	1786 Jul 13 15:25	21°☾14'49	0°27'17
behind sun begin	1779 Jun 10 17:05	19°II46'52		max. Earth dist.	1786 Jul 12 20:58	21°☾12'00	19.67196 AU
behind sun end	1779 Jun 11 06:08	19°II48'45		retrograde	1786 Oct 31 14:10	25°☾35'48	
max. Earth dist.	1779 Jun 10 15:33	19°II46'38	20.11690 AU	opposition	1787 Jan 13 17:14	23°☾33'06	0°31'52
retrograde	1779 Sep 29 21:10	24°II03'17		min. Earth dist.	1787 Jan 14 09:36	23°☾31'19	17.64525 AU
opposition	1779 Dec 14 01:53	22°II01'07	0°07'48	direct	1787 Mar 29 17:25	21°☾28'48	
min. Earth dist.	1779 Dec 14 09:06	22°II00'20	18.08177 AU	conjunction	1787 Jul 18 17:12	25°☾51'57	0°29'58
direct	1780 Feb 26 17:14	19°II59'21		minimum elong	1787 Jul 18 17:12	25°☾51'57	0°29'59
conjunction	1780 Jun 14 19:57	24°II11'51	0°08'43	max. Earth dist.	1787 Jul 17 20:56	25°☾48'51	19.61908 AU
minimum elong	1780 Jun 14 19:57	24°II11'51	0°08'43		1787 Oct 14 05:52	0°♈	
behind sun begin	1780 Jun 14 14:07	24°II11'00		retrograde	1787 Nov 05 12:58	0°♈13'37	
behind sun end	1780 Jun 15 01:47	24°II12'42			1787 Nov 28 00:17	30°♈☾	
max. Earth dist.	1780 Jun 14 09:25	24°II10'18	20.04727 AU	opposition	1788 Jan 18 12:09	28°☾10'53	0°34'46
retrograde	1780 Oct 03 14:23	28°II28'11		min. Earth dist.	1788 Jan 19 04:52	28°☾09'04	17.59375 AU
opposition	1780 Dec 17 15:40	26°II25'50	0°11'29	direct	1788 Apr 02 15:28	26°☾06'18	
min. Earth dist.	1780 Dec 18 01:16	26°II24'48	18.01272 AU		1788 Jul 14 10:59	0°♈	
direct	1781 Mar 02 07:05	24°II23'37		conjunction	1788 Jul 22 19:57	0°♈30'50	0°32'28
conjunction	1781 Jun 19 17:15	28°II37'40	0°12'00	minimum elong	1788 Jul 22 19:57	0°♈30'50	0°32'27
minimum elong	1781 Jun 19 17:15	28°II37'40	0°12'00	max. Earth dist.	1788 Jul 21 23:04	0°♈27'38	19.56873 AU
behind sun begin	1781 Jun 19 12:42	28°II37'00		retrograde	1788 Nov 09 10:59	4°♈53'02	
behind sun end	1781 Jun 19 21:47	28°II38'20		opposition	1789 Jan 22 07:51	2°♈50'20	0°37'28
max. Earth dist.	1781 Jun 19 05:42	28°II35'57	19.97885 AU	min. Earth dist.	1789 Jan 23 02:23	2°♈48'19	17.54481 AU
	1781 Jul 12 23:51	0°☾		direct	1789 Apr 07 12:34	0°♈45'26	
retrograde	1781 Oct 08 09:52	2°☾54'49		conjunction	1789 Jul 27 23:09	5°♈11'15	0°34'47
opposition	1781 Dec 22 06:03	0°☾52'20	0°15'07	minimum elong	1789 Jul 27 23:08	5°♈11'15	0°34'47
min. Earth dist.	1781 Dec 22 15:56	0°☾51'16	17.94507 AU	max. Earth dist.	1789 Jul 27 00:04	5°♈07'42	19.52121 AU
	1782 Jan 12 03:42	30°♈II		retrograde	1789 Nov 14 10:54	9°♈33'58	
direct	1782 Mar 06 23:04	28°II49'42		opposition	1790 Jan 27 04:15	7°♈31'14	0°39'55
	1782 Apr 28 12:03	0°☾		min. Earth dist.	1790 Jan 27 23:13	7°♈29'09	17.49881 AU
conjunction	1782 Jun 24 15:12	3°☾05'18	0°15'15	direct	1790 Apr 12 12:08	5°♈26'02	
minimum elong	1782 Jun 24 15:12	3°☾05'18	0°15'15	max. Earth dist.	1790 Aug 01 03:44	9°♈49'28	19.47666 AU
behind sun begin	1782 Jun 24 13:29	3°☾05'02		conjunction	1790 Aug 02 02:46	9°♈53'02	0°36'52
behind sun end	1782 Jun 24 16:55	3°☾05'33		minimum elong	1790 Aug 02 02:46	9°♈53'02	0°36'51
max. Earth dist.	1782 Jun 24 01:41	3°☾03'16	19.91205 AU	retrograde	1790 Nov 19 10:00	14°♈16'09	
retrograde	1782 Oct 13 04:03	7°☾23'16		opposition	1791 Feb 01 01:24	12°♈13'24	0°42'07
opposition	1782 Dec 26 21:14	5°☾20'40	0°18'42	min. Earth dist.	1791 Feb 01 21:34	12°♈11'12	17.45600 AU
min. Earth dist.	1782 Dec 27 09:15	5°☾19'22	17.87950 AU	direct	1791 Apr 17 11:02	10°♈07'56	
direct	1783 Mar 11 14:36	3°☾17'38		max. Earth dist.	1791 Aug 06 05:39	14°♈32'07	19.43576 AU
conjunction	1783 Jun 29 14:00	7°☾34'47	0°18'25	conjunction	1791 Aug 07 06:37	14°♈35'59	0°38'42
minimum elong	1783 Jun 29 14:00	7°☾34'47	0°18'24	minimum elong	1791 Aug 07 06:37	14°♈35'59	0°38'42
max. Earth dist.	1783 Jun 28 23:25	7°☾32'35	19.84777 AU		1791 Aug 13 17:23	15°♈	
retrograde	1783 Oct 18 00:28	11°☾53'33		retrograde	1791 Nov 24 10:05	18°♈59'28	
opposition	1783 Dec 31 13:01	9°☾50'52	0°22'11	opposition	1792 Feb 05 22:57	16°♈56'40	0°44'03
min. Earth dist.	1784 Jan 01 01:06	9°☾49'34	17.81659 AU	min. Earth dist.	1792 Feb 06 19:32	16°♈54'25	17.41720 AU
direct	1784 Mar 15 08:25	7°☾47'29		direct	1792 Apr 02 23:46	15°♈♈	
conjunction	1784 Jul 03 13:36	12°☾06'11	0°21'29	direct	1792 Apr 21 11:23	14°♈50'55	
minimum elong	1784 Jul 03 13:36	12°☾06'11	0°21'30		1792 May 09 20:03	15°♈	
max. Earth dist.	1784 Jul 02 21:35	12°☾03'46	19.78621 AU	max. Earth dist.	1792 Aug 10 10:31	19°♈16'10	19.39900 AU
retrograde	1784 Oct 21 19:55	16°☾25'43		conjunction	1792 Aug 11 10:54	19°♈19'58	0°40'18
opposition	1785 Jan 04 05:44	14°☾23'00	0°25'33	minimum elong	1792 Aug 11 10:54	19°♈19'58	0°40'18
min. Earth dist.	1785 Jan 04 19:51	14°☾21'28	17.75656 AU				

retrograde	1792 Nov 28 10:03	23°♂43'41			1800 Nov 01 08:02	0°♂	
opposition	1793 Feb 09 21:12	21°♂40'53	0°45'41	retrograde	1801 Jan 06 11:07	1°♂54'36	
min. Earth dist.	1793 Feb 10 18:22	21°♂38'34	17.38266 AU		1801 Mar 18 01:47	30°♂	
direct	1793 Apr 26 12:02	19°♂34'53		opposition	1801 Mar 20 22:54	29°♂52'30	0°46'57
				min. Earth dist.	1801 Mar 21 16:49	29°♂50'33	17.31917 AU
conjunction	1793 Aug 16 15:08	24°♂04'46	0°41'36	direct	1801 Jun 05 11:21	27°♂46'18	
minimum elong	1793 Aug 16 15:08	24°♂04'46	0°41'36		1801 Aug 18 13:48	0°♂	
max. Earth dist.	1793 Aug 15 13:17	24°♂00'44	19.36689 AU				
retrograde	1793 Dec 03 09:53	28°♂28'41		conjunction	1801 Sep 25 21:38	2°♂18'21	0°41'32
opposition	1794 Feb 14 19:55	26°♂25'52	0°47'00	minimum elong	1801 Sep 25 21:38	2°♂18'21	0°41'32
min. Earth dist.	1794 Feb 15 17:25	26°♂23'30	17.35324 AU	max. Earth dist.	1801 Sep 25 01:24	2°♂15'10	19.32733 AU
direct	1794 May 01 12:55	24°♂19'38		retrograde	1802 Jan 11 10:20	6°♂41'17	
				opposition	1802 Mar 26 00:40	4°♂39'21	0°45'37
conjunction	1794 Aug 21 19:34	28°♂50'15	0°42'38	min. Earth dist.	1802 Mar 26 18:52	4°♂37'23	17.33742 AU
minimum elong	1794 Aug 21 19:34	28°♂50'15	0°42'39	direct	1802 Jun 10 14:06	2°♂33'18	
max. Earth dist.	1794 Aug 20 18:49	28°♂46'23	19.34015 AU				
	1794 Sep 09 13:59	0°♂		conjunction	1802 Sep 30 23:58	7°♂04'58	0°40'11
retrograde	1794 Dec 08 10:38	3°♂14'17		minimum elong	1802 Sep 30 23:58	7°♂04'58	0°40'12
opposition	1795 Feb 19 19:12	1°♂11'28	0°48'00	max. Earth dist.	1802 Sep 30 04:03	7°♂01'49	19.34797 AU
min. Earth dist.	1795 Feb 20 16:23	1°♂09'08	17.32936 AU	retrograde	1803 Jan 16 11:12	11°♂27'25	
	1795 Mar 20 16:19	30°♂		opposition	1803 Mar 31 02:18	9°♂25'39	0°43'58
direct	1795 May 06 15:13	29°♂05'04		min. Earth dist.	1803 Mar 31 18:41	9°♂23'53	17.36024 AU
	1795 Jun 21 15:47	0°♂		direct	1803 Jun 15 18:31	7°♂19'45	
				max. Earth dist.	1803 Oct 05 07:44	11°♂48'02	19.37291 AU
conjunction	1795 Aug 26 23:40	3°♂36'16	0°43'23				
minimum elong	1795 Aug 26 23:40	3°♂36'16	0°43'23	conjunction	1803 Oct 06 01:48	11°♂50'53	0°38'35
max. Earth dist.	1795 Aug 25 22:15	3°♂32'18	19.31928 AU	minimum elong	1803 Oct 06 01:48	11°♂50'53	0°38'34
retrograde	1795 Dec 13 09:52	8°♂00'23		retrograde	1804 Jan 21 10:14	16°♂12'46	
opposition	1796 Feb 24 18:55	5°♂57'35	0°48'40	opposition	1804 Apr 04 04:08	14°♂11'08	0°42'01
min. Earth dist.	1796 Feb 25 16:19	5°♂55'14	17.31172 AU	min. Earth dist.	1804 Apr 04 20:34	14°♂09'21	17.38719 AU
direct	1796 May 10 16:27	3°♂51'04		direct	1804 Jun 19 21:17	12°♂05'24	
max. Earth dist.	1796 Aug 30 03:48	8°♂18'57	19.30484 AU	max. Earth dist.	1804 Oct 09 08:55	16°♂33'01	19.40195 AU
conjunction	1796 Aug 31 03:58	8°♂22'45	0°43'49	conjunction	1804 Oct 10 02:51	16°♂35'51	0°36'42
minimum elong	1796 Aug 31 03:58	8°♂22'45	0°43'49	minimum elong	1804 Oct 10 02:51	16°♂35'51	0°36'42
retrograde	1796 Dec 17 10:53	12°♂46'49		retrograde	1805 Jan 25 09:56	20°♂57'07	
opposition	1797 Feb 28 18:56	10°♂44'06	0°49'00	opposition	1805 Apr 09 05:39	18°♂55'35	0°39'46
min. Earth dist.	1797 Mar 01 15:22	10°♂41'52	17.30049 AU	min. Earth dist.	1805 Apr 09 20:12	18°♂54'01	17.41815 AU
direct	1797 May 15 20:23	8°♂37'33		direct	1805 Jun 25 01:15	16°♂50'01	
max. Earth dist.	1797 Sep 04 07:55	13°♂05'48	19.29696 AU	max. Earth dist.	1805 Oct 14 11:44	21°♂17'13	19.43491 AU
conjunction	1797 Sep 05 08:03	13°♂09'35	0°43'58	conjunction	1805 Oct 15 03:18	21°♂19'40	0°34'35
minimum elong	1797 Sep 05 08:03	13°♂09'35	0°43'58	minimum elong	1805 Oct 15 03:18	21°♂19'40	0°34'35
retrograde	1797 Dec 22 09:45	17°♂33'35		retrograde	1806 Jan 30 07:54	25°♂40'13	
opposition	1798 Mar 05 19:32	15°♂30'59	0°48'59	opposition	1806 Apr 14 07:14	23°♂38'48	0°37'16
min. Earth dist.	1798 Mar 06 16:09	15°♂28'43	17.29601 AU	min. Earth dist.	1806 Apr 14 21:20	23°♂37'18	17.45301 AU
direct	1798 May 20 22:23	13°♂24'27		direct	1806 Jun 30 04:32	21°♂33'26	
				max. Earth dist.	1806 Oct 19 11:24	25°♂59'43	19.47186 AU
conjunction	1798 Sep 10 11:47	17°♂56'42	0°43'48				
minimum elong	1798 Sep 10 11:47	17°♂56'42	0°43'48	conjunction	1806 Oct 20 02:34	26°♂02'06	0°32'14
max. Earth dist.	1798 Sep 09 12:50	17°♂53'05	19.29580 AU	minimum elong	1806 Oct 20 02:34	26°♂02'06	0°32'13
retrograde	1798 Dec 27 10:57	22°♂20'33			1807 Jan 07 02:36	0°♂	
opposition	1799 Mar 10 20:23	20°♂18'06	0°48'39	retrograde	1807 Feb 04 05:48	0°♂21'56	
min. Earth dist.	1799 Mar 11 15:32	20°♂16'01	17.29791 AU		1807 Mar 04 21:45	30°♂	
direct	1799 May 26 03:38	18°♂11'40		opposition	1807 Apr 19 08:23	28°♂20'35	0°34'32
				min. Earth dist.	1807 Apr 19 20:30	28°♂19'17	17.49194 AU
conjunction	1799 Sep 15 15:25	22°♂43'59	0°43'21	direct	1807 Jul 05 08:01	26°♂15'24	
minimum elong	1799 Sep 15 15:25	22°♂43'59	0°43'21		1807 Oct 13 13:56	0°♂	
max. Earth dist.	1799 Sep 14 17:12	22°♂40'30	19.30077 AU				
retrograde	1800 Jan 01 09:43	27°♂07'37		conjunction	1807 Oct 25 01:15	0°♂43'01	0°29'41
opposition	1800 Mar 15 21:30	25°♂05'20	0°47'58	minimum elong	1807 Oct 25 01:15	0°♂43'01	0°29'41
min. Earth dist.	1800 Mar 16 17:03	25°♂03'13	17.30586 AU	max. Earth dist.	1807 Oct 24 12:50	0°♂41'04	19.51283 AU
direct	1800 May 31 05:59	22°♂59'00		retrograde	1808 Feb 09 02:24	5°♂02'02	
				opposition	1808 Apr 23 09:10	3°♂00'46	0°31'34
conjunction	1800 Sep 20 18:44	27°♂31'17	0°42'35	min. Earth dist.	1808 Apr 23 20:18	2°♂59'35	17.53487 AU
minimum elong	1800 Sep 20 18:44	27°♂31'17	0°42'35	direct	1808 Jul 09 11:13	0°♂55'49	
max. Earth dist.	1800 Sep 19 21:09	27°♂27'53	19.31155 AU				

conjunction	1808 Oct 28 22:50	5°M22'16	0°26'57	conjunction	1815 Nov 30 04:51	7°J10'00	0°04'38
minimum elong	1808 Oct 28 22:50	5°M22'16	0°26'56	minimum elong	1815 Nov 30 04:50	7°J10'00	0°04'38
max. Earth dist.	1808 Oct 28 11:10	5°M20'26	19.55798 AU	behind sun begin	1815 Nov 29 22:25	7°J09'02	
retrograde	1809 Feb 12 22:52	9°M40'28		behind sun end	1815 Nov 30 11:16	7°J10'58	
opposition	1809 Apr 28 09:43	7°M39'17	0°28'26	max. Earth dist.	1815 Nov 30 07:24	7°J10'21	19.97849 AU
min. Earth dist.	1809 Apr 28 18:47	7°M38'19	17.58225 AU	retrograde	1816 Mar 16 08:20	11°J22'12	
direct	1809 Jul 14 13:28	5°M34'34		opposition	1816 May 31 00:28	9°J22'21	0°03'13
				min. Earth dist.	1816 May 30 20:43	9°J22'44	18.01198 AU
conjunction	1809 Nov 02 19:31	9°M59'48	0°24'03	direct	1816 Aug 16 07:50	7°J20'23	
minimum elong	1809 Nov 02 19:31	9°M59'48	0°24'03				
max. Earth dist.	1809 Nov 02 10:55	9°M58'28	19.60757 AU	conjunction	1816 Dec 03 19:26	11°J35'47	0°01'13
retrograde	1810 Feb 17 18:28	14°M17'09		minimum elong	1816 Dec 03 19:27	11°J35'47	0°01'13
opposition	1810 May 03 09:55	12°M16'06	0°25'07	behind sun begin	1816 Dec 03 12:53	11°J34'48	
min. Earth dist.	1810 May 03 17:12	12°M15'20	17.63394 AU	behind sun end	1816 Dec 04 02:00	11°J36'45	
direct	1810 Jul 19 15:39	10°M11'42		max. Earth dist.	1816 Dec 03 23:26	11°J36'21	20.04596 AU
				retrograde	1817 Mar 20 23:49	15°J47'07	
conjunction	1810 Nov 07 15:14	14°M35'37	0°21'02	desc. node	1817 Apr 10 09:39	15°J36'29	
minimum elong	1810 Nov 07 15:14	14°M35'37	0°21'02	opposition	1817 Jun 04 21:11	13°J47'26	0°00'-33
max. Earth dist.	1810 Nov 07 07:44	14°M34'28	19.66154 AU	min. Earth dist.	1817 Jun 04 16:44	13°J47'53	18.07952 AU
	1810 Nov 14 03:47	15°M		direct	1817 Aug 21 02:05	11°J45'52	
retrograde	1811 Feb 22 13:54	18°M52'08					
opposition	1811 May 08 09:29	16°M51'14	0°21'40	conjunction	1817 Dec 08 09:08	15°J59'44	0°-2'-16
min. Earth dist.	1811 May 08 14:54	16°M50'40	17.69006 AU	minimum elong	1817 Dec 08 09:07	15°J59'44	0°02'16
	1811 Jul 02 02:41	15°RM		behind sun begin	1817 Dec 08 02:34	15°J58'45	
direct	1811 Jul 24 15:40	14°M47'11		behind sun end	1817 Dec 08 15:40	16°J00'42	
	1811 Aug 15 20:43	15°M		max. Earth dist.	1817 Dec 08 14:44	16°J00'33	20.11332 AU
				retrograde	1818 Mar 25 16:56	20°J10'12	
conjunction	1811 Nov 12 10:12	19°M09'48	0°17'53	opposition	1818 Jun 09 17:03	18°J10'38	0°-4'-18
minimum elong	1811 Nov 12 10:12	19°M09'48	0°17'53	min. Earth dist.	1818 Jun 09 10:12	18°J11'21	18.14649 AU
max. Earth dist.	1811 Nov 12 05:32	19°M09'05	19.71965 AU	direct	1818 Aug 25 23:06	16°J09'28	
retrograde	1812 Feb 27 08:50	23°M25'26					
opposition	1812 May 12 08:40	21°M24'45	0°18'07	conjunction	1818 Dec 12 22:04	20°J21'47	0°-5'-37
min. Earth dist.	1812 May 12 11:59	21°M24'24	17.74980 AU	minimum elong	1818 Dec 12 22:05	20°J21'48	0°05'38
direct	1812 Jul 28 16:21	19°M21'06		behind sun begin	1818 Dec 12 15:47	20°J20'52	
				behind sun end	1818 Dec 13 04:23	20°J22'43	
conjunction	1812 Nov 16 04:05	23°M42'19	0°14'39	max. Earth dist.	1818 Dec 13 05:12	20°J22'51	20.17984 AU
minimum elong	1812 Nov 16 04:05	23°M42'19	0°14'40	retrograde	1819 Mar 30 06:58	24°J31'23	
behind sun begin	1812 Nov 16 01:12	23°M41'53		opposition	1819 Jun 14 12:10	22°J31'56	0°-7'-59
behind sun end	1812 Nov 16 06:58	23°M42'45		min. Earth dist.	1819 Jun 14 04:57	22°J32'40	18.21261 AU
max. Earth dist.	1812 Nov 16 00:42	23°M41'49	19.78107 AU	direct	1819 Aug 30 16:00	20°J31'05	
retrograde	1813 Mar 03 03:04	27°M57'07					
opposition	1813 May 17 07:28	25°M56'39	0°14'28	conjunction	1819 Dec 17 10:09	24°J41'54	0°-8'-54
min. Earth dist.	1813 May 17 09:18	25°M56'27	17.81272 AU	minimum elong	1819 Dec 17 10:09	24°J41'53	0°08'54
direct	1813 Aug 02 14:26	23°M53'24		behind sun begin	1819 Dec 17 04:30	24°J41'03	
				behind sun end	1819 Dec 17 15:48	24°J42'44	
conjunction	1813 Nov 20 21:15	28°M13'13	0°11'22	max. Earth dist.	1819 Dec 17 18:32	24°J43'09	20.24545 AU
minimum elong	1813 Nov 20 21:15	28°M13'13	0°11'21	retrograde	1820 Apr 02 22:12	28°J50'37	
behind sun begin	1813 Nov 20 16:24	28°M12'30		opposition	1820 Jun 18 06:32	26°J51'14	0°-11'-36
behind sun end	1813 Nov 21 02:06	28°M13'57		min. Earth dist.	1820 Jun 17 20:50	26°J52'13	18.27760 AU
max. Earth dist.	1813 Nov 20 20:25	28°M13'06	19.84529 AU	direct	1820 Sep 03 11:52	24°J50'42	
	1813 Dec 20 12:43	0°J					
retrograde	1814 Mar 07 21:31	2°J27'10		conjunction	1820 Dec 20 21:13	28°J59'59	0°-12'-6
opposition	1814 May 22 05:42	0°J26'54	0°10'45	minimum elong	1820 Dec 20 21:14	28°J59'59	0°12'07
min. Earth dist.	1814 May 22 05:15	0°J26'57	17.87788 AU	behind sun begin	1820 Dec 20 16:43	28°J59'19	
	1814 Jun 02 02:33	30°RM		behind sun end	1820 Dec 21 01:45	29°J00'38	
direct	1814 Aug 07 13:46	28°M24'06		max. Earth dist.	1820 Dec 21 07:28	29°J01'30	20.30987 AU
	1814 Oct 09 00:58	0°J			1821 Jan 06 14:42	0°J	
				retrograde	1821 Apr 07 11:01	3°J07'51	
conjunction	1814 Nov 25 13:23	2°J42'28	0°08'01	opposition	1821 Jun 23 00:21	1°J08'30	0°-15'-7
minimum elong	1814 Nov 25 13:23	2°J42'28	0°08'01	min. Earth dist.	1821 Jun 22 14:10	1°J09'32	18.34165 AU
behind sun begin	1814 Nov 25 07:30	2°J41'35			1821 Jul 22 21:19	30°RM	
behind sun end	1814 Nov 25 19:17	2°J43'21		direct	1821 Sep 08 03:37	29°J08'17	
max. Earth dist.	1814 Nov 25 13:57	2°J42'32	19.91130 AU		1821 Oct 23 15:26	0°J	
retrograde	1815 Mar 12 14:26	6°J55'33					
opposition	1815 May 27 03:27	4°J55'29	0°06'59	conjunction	1821 Dec 25 07:31	3°J16'02	0°-15'-13
min. Earth dist.	1815 May 27 02:01	4°J55'38	17.94461 AU	minimum elong	1821 Dec 25 07:31	3°J16'02	0°15'13
direct	1815 Aug 12 09:39	2°J53'07		behind sun begin	1821 Dec 25 05:08	3°J15'41	

behind sun end	1821 Dec 25 09:54	3°☾16'23		minimum elong	1830 Jan 26 19:29	6°☾25'37	0°35'23
max. Earth dist.	1821 Dec 25 19:03	3°☾17'46	20.37355 AU	max. Earth dist.	1830 Jan 27 16:42	6°☾28'43	20.83757 AU
retrograde	1822 Apr 12 00:27	7°☾23'05		retrograde	1830 May 15 14:21	10°☾27'52	
opposition	1822 Jun 27 17:06	5°☾23'46	0°-18'-32	min. Earth dist.	1830 Jul 31 10:08	8°☾31'23	18.86094 AU
min. Earth dist.	1822 Jun 27 04:18	5°☾25'04	18.40500 AU	opposition	1830 Aug 01 07:43	8°☾29'14	0°-40'-8
direct	1822 Sep 12 21:19	3°☾23'51		direct	1830 Oct 16 21:16	6°☾31'52	
conjunction	1822 Dec 29 17:01	7°☾30'09	0°-18'-14	conjunction	1831 Jan 31 01:16	10°☾28'48	0°-37'-9
minimum elong	1822 Dec 29 17:01	7°☾30'09	0°18'15	minimum elong	1831 Jan 31 01:16	10°☾28'48	0°37'10
max. Earth dist.	1822 Dec 30 06:37	7°☾32'10	20.43647 AU	max. Earth dist.	1831 Jan 31 23:40	10°☾32'04	20.88258 AU
retrograde	1823 Apr 16 11:51	11°☾36'25		retrograde	1831 May 19 22:07	14°☾30'40	
opposition	1823 Jul 02 09:18	9°☾37'09	0°-21'-48	opposition	1831 Aug 05 19:00	12°☾32'05	0°-41'-59
min. Earth dist.	1823 Jul 01 19:58	9°☾38'30	18.46770 AU	min. Earth dist.	1831 Aug 04 21:53	12°☾34'11	18.90363 AU
direct	1823 Sep 17 11:36	7°☾37'32		direct	1831 Oct 21 05:58	10°☾34'57	
conjunction	1824 Jan 03 01:47	11°☾42'25	0°-21'-7	conjunction	1832 Feb 04 06:35	14°☾31'01	0°-38'-45
minimum elong	1824 Jan 03 01:46	11°☾42'25	0°21'09	minimum elong	1832 Feb 04 06:35	14°☾31'01	0°38'45
max. Earth dist.	1824 Jan 03 16:26	11°☾44'36	20.49883 AU	max. Earth dist.	1832 Feb 05 04:32	14°☾34'12	20.92285 AU
retrograde	1824 Apr 20 00:03	15°☾47'57			1832 Feb 12 14:25	15°☾	
min. Earth dist.	1824 Jul 05 08:40	13°☾50'22	18.52970 AU	retrograde	1832 May 23 08:14	18°☾32'33	
opposition	1824 Jul 06 00:36	13°☾48'45	0°-24'-56	min. Earth dist.	1832 Aug 08 07:38	16°☾36'09	18.94146 AU
direct	1824 Sep 21 02:38	11°☾49'28		opposition	1832 Aug 09 05:43	16°☾33'57	0°-43'-38
conjunction	1825 Jan 06 09:59	15°☾53'01	0°-23'-53	direct	1832 Sep 23 18:09	15°☾	
minimum elong	1825 Jan 06 09:59	15°☾53'01	0°23'53		1832 Oct 24 14:30	14°☾37'00	
max. Earth dist.	1825 Jan 07 02:42	15°☾55'30	20.56031 AU		1832 Nov 23 16:46	15°☾	
retrograde	1825 Apr 24 10:26	19°☾57'52		conjunction	1833 Feb 07 11:49	18°☾32'17	0°-40'-8
opposition	1825 Jul 10 15:27	17°☾58'46	0°-27'-54	minimum elong	1833 Feb 07 11:49	18°☾32'17	0°40'10
min. Earth dist.	1825 Jul 09 23:04	18°☾00'25	18.59070 AU	max. Earth dist.	1833 Feb 08 10:49	18°☾35'36	20.95811 AU
direct	1825 Sep 25 15:08	15°☾59'49		retrograde	1833 May 27 15:26	22°☾33'31	
conjunction	1826 Jan 10 17:29	20°☾02'05	0°-26'-29	opposition	1833 Aug 13 15:57	20°☾34'53	0°-45'-3
minimum elong	1826 Jan 10 17:28	20°☾02'05	0°26'31	min. Earth dist.	1833 Aug 12 18:22	20°☾37'02	18.97430 AU
max. Earth dist.	1826 Jan 11 10:59	20°☾04'40	20.62067 AU	direct	1833 Oct 28 22:29	18°☾38'05	
retrograde	1826 Apr 28 22:01	24°☾06'19		conjunction	1834 Feb 11 16:39	22°☾32'37	0°-41'-19
min. Earth dist.	1826 Jul 14 10:50	22°☾09'11	18.65023 AU	minimum elong	1834 Feb 11 16:39	22°☾32'37	0°41'20
opposition	1826 Jul 15 05:28	22°☾07'18	0°-30'-43	max. Earth dist.	1834 Feb 12 15:06	22°☾35'51	20.98866 AU
direct	1826 Sep 30 03:58	20°☾08'42		retrograde	1834 Jun 01 00:38	26°☾33'36	
conjunction	1827 Jan 15 00:39	24°☾09'46	0°-28'-58	min. Earth dist.	1834 Aug 17 03:13	24°☾37'08	19.00257 AU
minimum elong	1827 Jan 15 00:39	24°☾09'46	0°28'58	opposition	1834 Aug 18 01:33	24°☾34'54	0°-46'-14
max. Earth dist.	1827 Jan 15 19:57	24°☾12'36	20.67909 AU	direct	1834 Nov 02 05:31	22°☾38'12	
retrograde	1827 May 03 07:26	28°☾13'25		conjunction	1835 Feb 15 21:23	26°☾32'05	0°-42'-18
opposition	1827 Jul 19 18:50	26°☾14'31	0°-33'-21	minimum elong	1835 Feb 15 21:23	26°☾32'05	0°42'20
min. Earth dist.	1827 Jul 19 00:08	26°☾16'24	18.70758 AU	max. Earth dist.	1835 Feb 16 20:54	26°☾35'28	21.01463 AU
direct	1827 Oct 04 14:43	24°☾16'15			1835 Apr 29 09:41	0°☾	
conjunction	1828 Jan 19 07:17	28°☾16'11	0°-31'-16	retrograde	1835 Jun 05 07:22	0°☾32'52	
minimum elong	1828 Jan 19 07:17	28°☾16'11	0°31'17		1835 Jul 13 06:14	30°☾	
max. Earth dist.	1828 Jan 20 02:57	28°☾19'04	20.73520 AU	opposition	1835 Aug 22 10:36	28°☾34'06	0°-47'-12
	1828 Feb 18 16:09	0°☾		min. Earth dist.	1835 Aug 21 12:39	28°☾36'17	19.02652 AU
retrograde	1828 May 06 18:46	2°☾19'19		direct	1835 Nov 06 12:34	26°☾37'30	
min. Earth dist.	1828 Jul 22 11:11	0°☾22'34	18.76227 AU		1836 Feb 11 03:29	0°☾	
opposition	1828 Jul 23 07:41	0°☾20'31	0°-35'-48	conjunction	1836 Feb 20 01:52	0°☾30'48	0°-43'-4
	1828 Jul 31 21:46	30°☾		minimum elong	1836 Feb 20 01:52	0°☾30'48	0°43'05
direct	1828 Oct 08 01:56	28°☾22'34		max. Earth dist.	1836 Feb 21 00:49	0°☾34'06	21.03672 AU
	1828 Dec 10 14:53	0°☾		retrograde	1836 Jun 08 16:17	4°☾31'27	
conjunction	1829 Jan 22 13:31	2°☾21'26	0°-33'-24	opposition	1836 Aug 25 19:18	2°☾32'37	0°-47'-56
minimum elong	1829 Jan 22 13:31	2°☾21'26	0°33'25	min. Earth dist.	1836 Aug 24 20:36	2°☾34'53	19.04680 AU
max. Earth dist.	1829 Jan 23 10:49	2°☾24'33	20.78818 AU	direct	1836 Nov 09 18:34	0°☾36'06	
retrograde	1829 May 11 03:23	6°☾24'06		conjunction	1837 Feb 23 06:16	4°☾28'56	0°-43'-38
opposition	1829 Jul 27 20:07	4°☾25'24	0°-38'-4	minimum elong	1837 Feb 23 06:16	4°☾28'56	0°43'39
min. Earth dist.	1829 Jul 26 23:47	4°☾27'26	18.81356 AU	max. Earth dist.	1837 Feb 24 06:20	4°☾32'23	21.05506 AU
direct	1829 Oct 12 11:31	2°☾27'46		retrograde	1837 Jun 12 22:59	8°☾29'31	
conjunction	1830 Jan 26 19:29	6°☾25'37	0°-35'-22	min. Earth dist.	1837 Aug 29 05:15	6°☾32'51	19.06336 AU
				opposition	1837 Aug 30 03:37	6°☾30'37	0°-48'-26



direct	1837 Nov 14 00:15	4° <del>✕</del> 34'12		direct	1845 Dec 15 17:01	6° <del>☿</del> 18'44	
conjunction	1838 Feb 27 10:44	8° <del>✕</del> 26'40	0°-43'-59	conjunction	1846 Mar 31 07:00	10° <del>☿</del> 11'32	0°-39'-22
minimum elong	1838 Feb 27 10:44	8° <del>✕</del> 26'40	0°44'00	minimum elong	1846 Mar 31 07:00	10° <del>☿</del> 11'32	0°39'22
max. Earth dist.	1838 Feb 28 10:02	8° <del>✕</del> 30'00	21.06991 AU	max. Earth dist.	1846 Apr 01 01:16	10° <del>☿</del> 14'09	21.03320 AU
retrograde	1838 Jun 17 08:02	12° <del>✕</del> 27'14		retrograde	1846 Jul 20 04:09	14° <del>☿</del> 14'07	
opposition	1838 Sep 03 11:24	10° <del>✕</del> 28'17	0°-48'-42	opposition	1846 Oct 05 21:17	12° <del>☿</del> 14'36	0°-42'-41
min. Earth dist.	1838 Sep 02 12:38	10° <del>✕</del> 30'34	19.07643 AU	min. Earth dist.	1846 Oct 05 04:37	12° <del>☿</del> 16'17	19.02004 AU
direct	1838 Nov 18 05:52	8° <del>✕</del> 31'56		direct	1846 Dec 19 21:53	10° <del>☿</del> 18'08	
conjunction	1839 Mar 03 15:21	12° <del>✕</del> 24'09	0°-44'-8	conjunction	1847 Apr 04 14:19	14° <del>☿</del> 11'22	0°-37'-52
minimum elong	1839 Mar 03 15:21	12° <del>✕</del> 24'09	0°44'09	minimum elong	1847 Apr 04 14:19	14° <del>☿</del> 11'22	0°37'54
max. Earth dist.	1839 Mar 04 15:30	12° <del>✕</del> 27'36	21.08103 AU	max. Earth dist.	1847 Apr 05 08:19	14° <del>☿</del> 13'56	21.00505 AU
retrograde	1839 Jun 21 15:03	16° <del>✕</del> 24'47		retrograde	1847 Jul 24 12:36	18° <del>☿</del> 14'22	
opposition	1839 Sep 07 19:05	14° <del>✕</del> 25'48	0°-48'-45	opposition	1847 Oct 10 04:18	16° <del>☿</del> 14'40	0°-40'-56
min. Earth dist.	1839 Sep 06 20:49	14° <del>✕</del> 28'02	19.08564 AU	min. Earth dist.	1847 Oct 09 12:45	16° <del>☿</del> 16'15	18.98937 AU
direct	1839 Nov 22 10:16	12° <del>✕</del> 29'33		direct	1847 Dec 24 03:55	14° <del>☿</del> 18'01	
conjunction	1840 Mar 06 19:51	16° <del>✕</del> 21'33	0°-44'-4	conjunction	1848 Apr 07 21:49	18° <del>☿</del> 11'43	0°-36'-11
minimum elong	1840 Mar 06 19:51	16° <del>✕</del> 21'33	0°44'06	minimum elong	1848 Apr 07 21:49	18° <del>☿</del> 11'43	0°36'12
max. Earth dist.	1840 Mar 07 19:04	16° <del>✕</del> 24'52	21.08842 AU	max. Earth dist.	1848 Apr 08 13:43	18° <del>☿</del> 13'59	20.97226 AU
retrograde	1840 Jun 25 00:08	20° <del>✕</del> 22'20		retrograde	1848 Jul 27 22:32	22° <del>☿</del> 15'14	
min. Earth dist.	1840 Sep 10 04:15	18° <del>✕</del> 25'33	19.09104 AU	opposition	1848 Oct 13 11:23	20° <del>☿</del> 15'20	0°-38'-58
opposition	1840 Sep 11 02:36	18° <del>✕</del> 23'18	0°-48'-33	min. Earth dist.	1848 Oct 12 21:00	20° <del>☿</del> 16'48	18.95444 AU
direct	1840 Nov 25 15:53	16° <del>✕</del> 27'07		direct	1848 Dec 27 09:19	18° <del>☿</del> 18'27	
conjunction	1841 Mar 11 00:50	20° <del>✕</del> 19'03	0°-43'-48	conjunction	1849 Apr 12 06:07	22° <del>☿</del> 12'44	0°-34'-19
minimum elong	1841 Mar 11 00:50	20° <del>✕</del> 19'03	0°43'49	minimum elong	1849 Apr 12 06:07	22° <del>☿</del> 12'44	0°34'21
max. Earth dist.	1841 Mar 12 00:42	20° <del>✕</del> 22'28	21.09168 AU	max. Earth dist.	1849 Apr 12 21:52	22° <del>☿</del> 14'59	20.93531 AU
retrograde	1841 Jun 29 07:57	24° <del>✕</del> 20'00		retrograde	1849 Aug 01 07:18	26° <del>☿</del> 16'46	
opposition	1841 Sep 15 09:52	22° <del>✕</del> 20'58	0°-48'-8	opposition	1849 Oct 17 18:22	24° <del>☿</del> 16'41	0°-36'-49
min. Earth dist.	1841 Sep 14 12:20	22° <del>✕</del> 23'07	19.09210 AU	min. Earth dist.	1849 Oct 17 05:02	24° <del>☿</del> 18'03	18.91558 AU
direct	1841 Nov 29 20:11	20° <del>✕</del> 24'50		direct	1849 Dec 31 15:08	22° <del>☿</del> 19'35	
conjunction	1842 Mar 15 06:02	24° <del>✕</del> 16'46	0°-43'-20	conjunction	1850 Apr 16 14:50	26° <del>☿</del> 14'33	0°-32'-17
minimum elong	1842 Mar 15 06:02	24° <del>✕</del> 16'46	0°43'21	minimum elong	1850 Apr 16 14:50	26° <del>☿</del> 14'33	0°32'18
max. Earth dist.	1842 Mar 16 04:30	24° <del>✕</del> 19'59	21.09058 AU	max. Earth dist.	1850 Apr 17 04:22	26° <del>☿</del> 16'29	20.89483 AU
retrograde	1842 Jul 03 17:02	28° <del>✕</del> 17'58		retrograde	1850 Jul 08 15:28	0° <del>♄</del>	
opposition	1842 Sep 19 17:04	26° <del>✕</del> 18'53	0°-47'-30	retrograde	1850 Aug 05 18:11	0° <del>♄</del> 19'12	
min. Earth dist.	1842 Sep 18 20:00	26° <del>✕</del> 21'00	19.08859 AU	retrograde	1850 Sep 03 01:03	30° <del>♄</del>	
direct	1842 Dec 04 01:17	24° <del>✕</del> 22'46		opposition	1850 Oct 22 01:38	28° <del>☿</del> 18'55	0°-34'-28
conjunction	1843 Mar 19 11:40	28° <del>✕</del> 14'50	0°-42'-39	min. Earth dist.	1850 Oct 21 13:33	28° <del>☿</del> 20'09	18.87347 AU
minimum elong	1843 Mar 19 11:40	28° <del>✕</del> 14'50	0°42'39	direct	1851 Jan 04 21:05	26° <del>☿</del> 21'34	
max. Earth dist.	1843 Mar 20 10:19	28° <del>✕</del> 18'03	21.08444 AU	direct	1851 Apr 15 23:26	0° <del>♄</del>	
retrograde	1843 Apr 20 05:18	0° <del>☿</del>		conjunction	1851 Apr 21 00:09	0° <del>♄</del> 17'19	0°-30'-5
min. Earth dist.	1843 Jul 08 01:20	2° <del>☿</del> 16'19		minimum elong	1851 Apr 21 00:09	0° <del>♄</del> 17'19	0°30'06
opposition	1843 Sep 23 04:11	0° <del>☿</del> 19'11	19.07979 AU	max. Earth dist.	1851 Apr 21 13:33	0° <del>♄</del> 19'14	20.85112 AU
opposition	1843 Sep 24 00:09	0° <del>☿</del> 17'10	0°-46'-38	retrograde	1851 Aug 10 03:39	4° <del>♄</del> 22'37	
direct	1843 Oct 01 03:37	30° <del>♄</del>		opposition	1851 Oct 26 09:04	2° <del>♄</del> 22'11	0°-31'-57
direct	1843 Dec 08 06:26	28° <del>✕</del> 21'04		min. Earth dist.	1851 Oct 25 21:53	2° <del>♄</del> 23'20	18.82825 AU
	1844 Feb 10 10:51	0° <del>☿</del>		direct	1852 Jan 09 03:14	0° <del>♄</del> 24'36	
conjunction	1844 Mar 22 17:39	2° <del>☿</del> 13'17	0°-41'-45	conjunction	1852 Apr 24 10:05	4° <del>♄</del> 21'13	0°-27'-43
minimum elong	1844 Mar 22 17:39	2° <del>☿</del> 13'17	0°41'47	minimum elong	1852 Apr 24 10:05	4° <del>♄</del> 21'13	0°27'44
max. Earth dist.	1844 Mar 23 14:24	2° <del>☿</del> 16'15	21.07305 AU	max. Earth dist.	1852 Apr 24 21:10	4° <del>♄</del> 22'49	20.80468 AU
retrograde	1844 Jul 11 10:28	6° <del>☿</del> 15'07		retrograde	1852 Aug 13 15:10	8° <del>♄</del> 27'14	
opposition	1844 Sep 27 07:17	4° <del>☿</del> 15'53	0°-45'-32	opposition	1852 Oct 29 16:47	6° <del>♄</del> 26'40	0°-29'-15
min. Earth dist.	1844 Sep 26 12:11	4° <del>☿</del> 17'48	19.06562 AU	min. Earth dist.	1852 Oct 29 07:02	6° <del>♄</del> 27'40	18.78051 AU
direct	1844 Dec 11 11:04	2° <del>☿</del> 19'42		direct	1853 Jan 12 09:51	4° <del>♄</del> 28'50	
conjunction	1845 Mar 27 00:07	6° <del>☿</del> 12'11	0°-40'-40	conjunction	1853 Apr 28 20:55	8° <del>♄</del> 26'26	0°-25'-12
minimum elong	1845 Mar 27 00:07	6° <del>☿</del> 12'11	0°40'40	minimum elong	1853 Apr 28 20:55	8° <del>♄</del> 26'26	0°25'13
max. Earth dist.	1845 Mar 27 20:39	6° <del>☿</del> 15'07	21.05595 AU	max. Earth dist.	1853 Apr 29 07:43	8° <del>♄</del> 27'59	20.75562 AU
retrograde	1845 Jul 15 18:58	10° <del>☿</del> 14'22		retrograde	1853 Aug 18 02:13	12° <del>♄</del> 33'12	
opposition	1845 Oct 01 14:23	8° <del>☿</del> 15'01	0°-44'-13	opposition	1853 Nov 03 00:47	10° <del>♄</del> 32'31	0°-26'-24
min. Earth dist.	1845 Sep 30 20:32	8° <del>☿</del> 16'49	19.04556 AU	min. Earth dist.	1853 Nov 02 16:02	10° <del>♄</del> 33'25	18.73008 AU

direct	1854 Jan 16 16:57	8°♄34'28		retrograde	1860 Sep 17 02:32	12°♄01'33	
				opposition	1860 Dec 01 21:48	9°♄59'55	0°-2'-49
conjunction	1854 May 03 08:25	12°♄33'07	0°-22'-33	min. Earth dist.	1860 Dec 02 01:16	9°♄59'33	18.30135 AU
minimum elong	1854 May 03 08:25	12°♄33'07	0°22'34	direct	1861 Feb 14 11:15	7°♄59'32	
max. Earth dist.	1854 May 03 16:36	12°♄34'17	20.70404 AU				
	1854 Jun 17 14:45	15°♄		conjunction	1861 Jun 02 18:26	12°♄07'19	0°00'-56
retrograde	1854 Aug 22 14:06	16°♄40'41		minimum elong	1861 Jun 02 18:26	12°♄07'19	0°00'58
	1854 Oct 30 06:21	15°♄♄		behind sun begin	1861 Jun 02 11:41	12°♄06'21	
opposition	1854 Nov 07 09:09	14°♄39'54	0°-23'-23	behind sun end	1861 Jun 03 01:11	12°♄08'18	
min. Earth dist.	1854 Nov 07 02:10	14°♄40'37	18.67723 AU	max. Earth dist.	1861 Jun 02 14:01	12°♄06'43	20.26656 AU
direct	1855 Jan 21 00:15	12°♄41'36		asc. node	1861 Sep 12 17:24	16°♄18'46	
	1855 Apr 07 19:29	15°♄		retrograde	1861 Sep 21 19:20	16°♄20'54	
				opposition	1861 Dec 06 09:38	14°♄19'06	0°00'51
conjunction	1855 May 07 20:54	16°♄41'24	0°-19'-46	min. Earth dist.	1861 Dec 06 13:56	14°♄18'38	18.23103 AU
minimum elong	1855 May 07 20:54	16°♄41'25	0°19'46	direct	1862 Feb 19 00:13	12°♄18'15	
max. Earth dist.	1855 May 08 04:37	16°♄42'31	20.64991 AU				
retrograde	1855 Aug 27 02:55	20°♄49'49		conjunction	1862 Jun 07 12:53	16°♄27'29	0°02'29
opposition	1855 Nov 11 17:58	18°♄48'56	0°-20'-14	minimum elong	1862 Jun 07 12:52	16°♄27'29	0°02'30
min. Earth dist.	1855 Nov 11 12:06	18°♄49'33	18.62170 AU	behind sun begin	1862 Jun 07 06:07	16°♄26'31	
direct	1856 Jan 25 08:41	16°♄50'24		behind sun end	1862 Jun 07 19:38	16°♄28'28	
				max. Earth dist.	1862 Jun 07 05:33	16°♄26'26	20.19592 AU
conjunction	1856 May 11 10:04	20°♄51'25	0°-16'-51	retrograde	1862 Sep 26 11:19	20°♄41'56	
minimum elong	1856 May 11 10:04	20°♄51'25	0°16'52	opposition	1862 Dec 10 22:07	18°♄39'55	0°04'33
max. Earth dist.	1856 May 11 14:52	20°♄52'06	20.59309 AU	min. Earth dist.	1862 Dec 11 04:44	18°♄39'12	18.16036 AU
retrograde	1856 Aug 30 15:43	25°♄00'42		direct	1863 Feb 23 12:15	16°♄38'36	
opposition	1856 Nov 15 03:22	22°♄59'43	0°-16'-57				
min. Earth dist.	1856 Nov 14 23:41	23°♄00'06	18.56342 AU	conjunction	1863 Jun 12 08:21	20°♄49'21	0°05'49
direct	1857 Jan 28 16:59	21°♄00'53		minimum elong	1863 Jun 12 08:20	20°♄49'21	0°05'49
				behind sun begin	1863 Jun 12 01:52	20°♄48'25	
conjunction	1857 May 16 00:31	25°♄03'11	0°-13'-50	behind sun end	1863 Jun 12 14:48	20°♄50'17	
minimum elong	1857 May 16 00:31	25°♄03'11	0°13'50	max. Earth dist.	1863 Jun 12 00:20	20°♄48'11	20.12533 AU
behind sun begin	1857 May 15 21:08	25°♄02'43		retrograde	1863 Oct 01 05:42	25°♄04'38	
behind sun end	1857 May 16 03:54	25°♄03'40		opposition	1863 Dec 15 11:04	23°♄02'26	0°08'15
max. Earth dist.	1857 May 16 04:25	25°♄03'45	20.53324 AU	min. Earth dist.	1863 Dec 15 18:12	23°♄01'40	18.09004 AU
retrograde	1857 Sep 04 05:57	29°♄13'20		direct	1864 Feb 28 03:03	21°♄00'40	
opposition	1857 Nov 19 13:05	27°♄12'14	0°-13'-33				
min. Earth dist.	1857 Nov 19 10:41	27°♄12'30	18.50195 AU	conjunction	1864 Jun 16 04:28	25°♄12'55	0°09'07
direct	1858 Feb 02 03:03	25°♄13'05		minimum elong	1864 Jun 16 04:28	25°♄12'55	0°09'08
				behind sun begin	1864 Jun 15 22:45	25°♄12'06	
conjunction	1858 May 20 15:42	29°♄16'43	0°-10'-43	behind sun end	1864 Jun 16 10:10	25°♄13'45	
minimum elong	1858 May 20 15:42	29°♄16'43	0°10'44	max. Earth dist.	1864 Jun 15 17:56	25°♄11'22	20.05541 AU
behind sun begin	1858 May 20 10:35	29°♄15'59		retrograde	1864 Oct 04 22:23	29°♄29'04	
behind sun end	1858 May 20 20:49	29°♄17'26		opposition	1864 Dec 19 00:52	27°♄26'42	0°11'56
max. Earth dist.	1858 May 20 16:16	29°♄16'47	20.47029 AU	min. Earth dist.	1864 Dec 19 10:14	27°♄25'41	18.02079 AU
	1858 Jun 02 01:24	0°♄		direct	1865 Mar 03 16:13	25°♄24'30	
retrograde	1858 Sep 08 19:55	3°♄27'44					
opposition	1858 Nov 23 23:33	1°♄26'29	0°-10'-3	conjunction	1865 Jun 21 01:40	29°♄38'18	0°12'24
min. Earth dist.	1858 Nov 23 23:32	1°♄26'29	18.43754 AU	minimum elong	1865 Jun 21 01:40	29°♄38'18	0°12'25
	1859 Jan 01 07:48	30°♄♄		behind sun begin	1865 Jun 20 21:21	29°♄37'40	
direct	1859 Feb 06 12:44	29°♄26'57		behind sun end	1865 Jun 21 05:59	29°♄38'56	
	1859 Mar 14 03:36	0°♄		max. Earth dist.	1865 Jun 20 14:23	29°♄36'37	19.98688 AU
					1865 Jun 27 02:36	0°♄	
conjunction	1859 May 25 07:43	3°♄31'55	0°-7'-32	retrograde	1865 Oct 09 18:20	3°♄55'17	
minimum elong	1859 May 25 07:42	3°♄31'55	0°07'33	opposition	1865 Dec 23 15:05	1°♄52'47	0°15'33
behind sun begin	1859 May 25 01:36	3°♄31'03		min. Earth dist.	1865 Dec 24 00:46	1°♄51'45	17.95313 AU
behind sun end	1859 May 25 13:49	3°♄32'48			1866 Feb 17 02:50	30°♄♄	
max. Earth dist.	1859 May 25 07:22	3°♄31'53	20.40446 AU	direct	1866 Mar 08 08:54	29°♄50'11	
retrograde	1859 Sep 13 11:22	7°♄43'48			1866 Mar 27 12:01	0°♄	
opposition	1859 Nov 28 10:25	5°♄42'23	0°-6'-28				
min. Earth dist.	1859 Nov 28 11:27	5°♄42'17	18.37037 AU	conjunction	1866 Jun 25 23:35	4°♄05'33	0°15'38
direct	1860 Feb 11 00:13	3°♄42'27		minimum elong	1866 Jun 25 23:35	4°♄05'33	0°15'37
				behind sun begin	1866 Jun 25 22:43	4°♄05'26	
conjunction	1860 May 29 00:34	7°♄48'48	0°-4'-17	behind sun end	1866 Jun 26 00:27	4°♄05'41	
minimum elong	1860 May 29 00:33	7°♄48'48	0°04'18	max. Earth dist.	1866 Jun 25 10:10	4°♄03'33	19.92018 AU
behind sun begin	1860 May 28 17:55	7°♄47'51		retrograde	1866 Oct 14 12:05	8°♄23'23	
behind sun end	1860 May 29 07:12	7°♄49'45		opposition	1866 Dec 28 06:19	6°♄20'48	0°19'07
max. Earth dist.	1860 May 28 21:00	7°♄48'19	20.33629 AU	min. Earth dist.	1866 Dec 28 18:06	6°♄19'31	17.88767 AU

direct	1867 Mar 12 23:33	4°☾17'49		opposition	1875 Feb 02 10:23	13°♈13'20	0°42'21
				min. Earth dist.	1875 Feb 03 06:53	13°♈11'05	17.45181 AU
conjunction	1867 Jun 30 22:15	8°♊34'46	0°18'47	direct	1875 Apr 18 19:58	11°♈07'50	
minimum elong	1867 Jun 30 22:15	8°♊34'46	0°18'47		1875 Jul 29 23:05	15°♈	
max. Earth dist.	1867 Jun 30 08:01	8°♊32'37	19.85596 AU				
retrograde	1867 Oct 19 09:30	12°♊53'26		conjunction	1875 Aug 08 14:53	15°♈35'54	0°38'54
opposition	1868 Jan 01 22:07	10°♊50'47	0°22'35	minimum elong	1875 Aug 08 14:53	15°♈35'54	0°38'54
min. Earth dist.	1868 Jan 02 10:04	10°♊49'29	17.82465 AU	max. Earth dist.	1875 Aug 07 13:47	15°♈32'01	19.43072 AU
direct	1868 Mar 16 17:55	8°♊47'28		retrograde	1875 Nov 25 18:36	19°♈59'29	
				opposition	1876 Feb 07 07:57	17°♈56'37	0°44'14
conjunction	1868 Jul 04 21:56	13°♊06'00	0°21'51	min. Earth dist.	1876 Feb 08 04:35	17°♈54'22	17.41134 AU
minimum elong	1868 Jul 04 21:56	13°♊06'00	0°21'50	direct	1876 Apr 22 20:47	15°♈50'49	
max. Earth dist.	1868 Jul 04 05:57	13°♊03'36	19.79411 AU				
retrograde	1868 Oct 23 04:33	17°♊25'29		conjunction	1876 Aug 12 19:07	20°♈19'53	0°40'27
opposition	1869 Jan 05 14:43	15°♊22'50	0°25'56	minimum elong	1876 Aug 12 19:07	20°♈19'53	0°40'26
min. Earth dist.	1869 Jan 06 04:56	15°♊21'17	17.76411 AU	max. Earth dist.	1876 Aug 11 18:39	20°♈16'05	19.39246 AU
direct	1869 Mar 21 10:22	13°♊19'11		retrograde	1876 Nov 29 18:22	24°♈43'44	
				opposition	1877 Feb 11 06:02	22°♈40'51	0°45'50
conjunction	1869 Jul 09 22:31	17°♊39'19	0°24'48	min. Earth dist.	1877 Feb 12 03:22	22°♈38'31	17.37558 AU
minimum elong	1869 Jul 09 22:31	17°♊39'19	0°24'48	direct	1877 Apr 27 20:29	20°♈34'47	
max. Earth dist.	1869 Jul 09 05:11	17°♊36'41	19.73478 AU				
retrograde	1869 Oct 28 03:13	21°♊59'34		conjunction	1877 Aug 17 23:18	25°♈04'43	0°41'43
opposition	1870 Jan 10 08:04	19°♊56'54	0°29'10	minimum elong	1877 Aug 17 23:18	25°♈04'43	0°41'44
min. Earth dist.	1870 Jan 10 22:37	19°♊55'19	17.70593 AU	max. Earth dist.	1877 Aug 16 21:28	25°♈00'42	19.35938 AU
direct	1870 Mar 26 06:45	17°♊52'58		retrograde	1877 Dec 04 18:51	29°♈28'47	
				opposition	1878 Feb 16 04:47	27°♈25'52	0°47'06
conjunction	1870 Jul 14 23:45	22°♊14'37	0°27'37	min. Earth dist.	1878 Feb 17 02:06	27°♈23'32	17.34541 AU
minimum elong	1870 Jul 14 23:45	22°♊14'37	0°27'37	direct	1878 May 02 22:02	25°♈19'34	
max. Earth dist.	1870 Jul 14 05:02	22°♊11'46	19.67755 AU	max. Earth dist.	1878 Aug 22 03:00	29°♈46'25	19.33208 AU
retrograde	1870 Nov 01 23:15	26°♊35'36					
opposition	1871 Jan 15 02:23	24°♊32'56	0°32'13	conjunction	1878 Aug 23 03:31	29°♈50'15	0°42'43
min. Earth dist.	1871 Jan 15 19:07	24°♊31'07	17.64991 AU	minimum elong	1878 Aug 23 03:31	29°♈50'15	0°42'42
direct	1871 Mar 31 01:30	22°♊28'42			1878 Aug 25 17:47	0°♐	
max. Earth dist.	1871 Jul 19 05:15	26°♊48'40	19.62265 AU	retrograde	1878 Dec 09 18:59	4°♐14'26	
				opposition	1879 Feb 21 04:03	2°♐11'32	0°48'03
conjunction	1871 Jul 20 01:44	26°♊51'48	0°30'16	min. Earth dist.	1879 Feb 22 01:09	2°♐09'13	17.32118 AU
minimum elong	1871 Jul 20 01:43	26°♊51'48	0°30'16	direct	1879 May 07 22:56	0°♐05'05	
	1871 Sep 14 18:57	0°♈		max. Earth dist.	1879 Aug 27 06:27	4°♐32'25	19.31107 AU
retrograde	1871 Nov 06 22:32	1°♈13'28					
	1871 Dec 31 12:36	30°♐☾		conjunction	1879 Aug 28 07:46	4°♐36'23	0°43'25
opposition	1872 Jan 19 21:14	29°♐10'46	0°35'06	minimum elong	1879 Aug 28 07:46	4°♐36'23	0°43'24
min. Earth dist.	1872 Jan 20 14:17	29°♐08'54	17.59620 AU	retrograde	1879 Dec 14 19:00	9°♐00'39	
direct	1872 Apr 03 23:55	27°♐06'12		opposition	1880 Feb 26 03:39	6°♐57'46	0°48'41
	1872 Jun 29 02:56	0°♈		min. Earth dist.	1880 Feb 27 00:45	6°♐55'28	17.30355 AU
max. Earth dist.	1872 Jul 23 07:06	1°♈27'25	19.57000 AU	direct	1880 May 12 01:25	4°♐51'13	
conjunction	1872 Jul 24 04:27	1°♈30'42	0°32'45	conjunction	1880 Sep 01 12:12	9°♐23'02	0°43'49
minimum elong	1872 Jul 24 04:27	1°♈30'42	0°32'46	minimum elong	1880 Sep 01 12:11	9°♐23'02	0°43'49
retrograde	1872 Nov 10 19:52	5°♈52'57		max. Earth dist.	1880 Aug 31 12:14	9°♐19'16	19.29673 AU
opposition	1873 Jan 23 17:02	3°♈50'13	0°37'46	retrograde	1880 Dec 18 19:23	13°♐47'16	
min. Earth dist.	1873 Jan 24 12:00	3°♈48'09	17.54488 AU	opposition	1881 Mar 02 03:50	11°♐44'31	0°48'59
direct	1873 Apr 08 21:15	1°♈45'21		min. Earth dist.	1881 Mar 03 00:08	11°♐42'17	17.29240 AU
max. Earth dist.	1873 Jul 28 08:15	6°♈07'33	19.52010 AU	direct	1881 May 17 04:15	9°♐37'56	
conjunction	1873 Jul 29 07:34	6°♈11'08	0°35'02	conjunction	1881 Sep 06 16:18	14°♐10'07	0°43'56
minimum elong	1873 Jul 29 07:34	6°♈11'08	0°35'02	minimum elong	1881 Sep 06 16:18	14°♐10'07	0°43'55
retrograde	1873 Nov 15 19:30	10°♈33'54		max. Earth dist.	1881 Sep 05 16:10	14°♐06'19	19.28886 AU
opposition	1874 Jan 28 13:19	8°♈31'08	0°40'11	retrograde	1881 Dec 23 19:02	18°♐34'18	
min. Earth dist.	1874 Jan 29 08:31	8°♈29'02	17.49658 AU	opposition	1882 Mar 07 04:29	16°♐31'40	0°48'56
direct	1874 Apr 13 21:12	6°♈25'56		min. Earth dist.	1882 Mar 08 00:54	16°♐29'26	17.28780 AU
max. Earth dist.	1874 Aug 02 11:50	10°♈49'19	19.47341 AU	direct	1882 May 22 07:21	14°♐25'07	
conjunction	1874 Aug 03 11:12	10°♈52'56	0°37'05	conjunction	1882 Sep 11 20:22	18°♐57'32	0°43'44
minimum elong	1874 Aug 03 11:12	10°♈52'56	0°37'05	minimum elong	1882 Sep 11 20:22	18°♐57'32	0°43'45
	1874 Oct 27 15:55	15°♈		max. Earth dist.	1882 Sep 10 21:29	18°♐53'55	19.28738 AU
retrograde	1874 Nov 20 18:14	15°♈16'08		retrograde	1882 Dec 28 20:00	23°♐21'34	
	1874 Dec 15 03:42	15°♐♈		opposition	1883 Mar 12 05:22	21°♐19'05	0°48'33

min. Earth dist.	1883 Mar 13 00:37	21° $\mathring{M}$ 16'59	17.28918 AU		1891 Apr 05 02:56	30° $\mathring{R}$ $\mathring{U}$	
direct	1883 May 27 11:36	19° $\mathring{M}$ 12'37		opposition	1891 Apr 19 18:05	29° $\mathring{U}$ 23'05	0°34'08
max. Earth dist.	1883 Sep 16 01:39	23° $\mathring{M}$ 41'34	19.29158 AU	min. Earth dist.	1891 Apr 20 06:03	29° $\mathring{U}$ 21'48	17.47635 AU
				direct	1891 Jul 05 17:40	27° $\mathring{U}$ 17'46	
conjunction	1883 Sep 17 00:10	23° $\mathring{M}$ 45'07	0°43'14		1891 Sep 26 15:32	0° $\mathring{M}$	
minimum elong	1883 Sep 17 00:10	23° $\mathring{M}$ 45'07	0°43'14				
retrograde	1884 Jan 02 19:32	28° $\mathring{M}$ 08'56		conjunction	1891 Oct 25 11:12	1° $\mathring{M}$ 45'38	0°29'19
opposition	1884 Mar 16 06:46	26° $\mathring{M}$ 06'37	0°47'50	minimum elong	1891 Oct 25 11:12	1° $\mathring{M}$ 45'38	0°29'18
min. Earth dist.	1884 Mar 17 02:22	26° $\mathring{M}$ 04'28	17.29614 AU	max. Earth dist.	1891 Oct 24 23:02	1° $\mathring{M}$ 43'44	19.49777 AU
direct	1884 May 31 14:54	24° $\mathring{M}$ 00'13		retrograde	1892 Feb 09 12:42	6° $\mathring{M}$ 04'53	
max. Earth dist.	1884 Sep 20 05:58	28° $\mathring{M}$ 29'14	19.30115 AU	opposition	1892 Apr 23 19:07	4° $\mathring{M}$ 03'32	0°31'09
				min. Earth dist.	1892 Apr 24 06:03	4° $\mathring{M}$ 02'22	17.52054 AU
conjunction	1884 Sep 21 03:42	28° $\mathring{M}$ 32'40	0°42'27	direct	1892 Jul 09 19:58	1° $\mathring{M}$ 58'30	
minimum elong	1884 Sep 21 03:42	28° $\mathring{M}$ 32'40	0°42'27				
	1884 Oct 14 14:35	0° $\mathring{U}$		conjunction	1892 Oct 29 08:49	6° $\mathring{M}$ 25'12	0°26'33
retrograde	1885 Jan 06 20:48	2° $\mathring{U}$ 56'11		minimum elong	1892 Oct 29 08:49	6° $\mathring{M}$ 25'12	0°26'34
opposition	1885 Mar 21 08:16	0° $\mathring{U}$ 54'00	0°46'47	max. Earth dist.	1892 Oct 28 21:31	6° $\mathring{M}$ 23'26	19.54449 AU
min. Earth dist.	1885 Mar 22 02:22	0° $\mathring{U}$ 52'02	17.30810 AU	retrograde	1893 Feb 13 09:48	10° $\mathring{M}$ 43'39	
	1885 Apr 11 18:15	30° $\mathring{R}$ $\mathring{M}$		opposition	1893 Apr 28 19:43	8° $\mathring{M}$ 42'26	0°27'59
direct	1885 Jun 05 20:05	28° $\mathring{M}$ 47'44		min. Earth dist.	1893 Apr 29 04:18	8° $\mathring{M}$ 41'31	17.56973 AU
	1885 Jul 29 01:21	0° $\mathring{U}$		direct	1893 Jul 14 22:41	6° $\mathring{M}$ 37'41	
max. Earth dist.	1885 Sep 25 10:08	3° $\mathring{U}$ 16'41	19.31554 AU				
				conjunction	1893 Nov 03 05:44	11° $\mathring{M}$ 03'11	0°23'39
conjunction	1885 Sep 26 06:51	3° $\mathring{U}$ 19'57	0°41'21	minimum elong	1893 Nov 03 05:44	11° $\mathring{M}$ 03'11	0°23'38
minimum elong	1885 Sep 26 06:51	3° $\mathring{U}$ 19'57	0°41'22	max. Earth dist.	1893 Nov 02 21:34	11° $\mathring{M}$ 01'55	19.59611 AU
retrograde	1886 Jan 11 19:50	7° $\mathring{U}$ 43'04			1894 Jan 21 17:10	15° $\mathring{M}$	
opposition	1886 Mar 26 10:11	5° $\mathring{U}$ 41'02	0°45'24	retrograde	1894 Feb 18 05:38	15° $\mathring{M}$ 20'47	
min. Earth dist.	1886 Mar 27 04:33	5° $\mathring{U}$ 39'03	17.32492 AU		1894 Mar 18 07:41	15° $\mathring{R}$ $\mathring{M}$	
direct	1886 Jun 10 23:06	3° $\mathring{U}$ 34'54		opposition	1894 May 03 19:58	13° $\mathring{M}$ 19'45	0°24'39
				min. Earth dist.	1894 May 04 02:57	13° $\mathring{M}$ 19'00	17.62354 AU
conjunction	1886 Oct 01 09:15	8° $\mathring{U}$ 06'43	0°39'59	direct	1894 Jul 20 00:34	11° $\mathring{M}$ 15'22	
minimum elong	1886 Oct 01 09:15	8° $\mathring{U}$ 06'43	0°39'58		1894 Oct 28 11:02	15° $\mathring{M}$	
max. Earth dist.	1886 Sep 30 13:03	8° $\mathring{U}$ 03'32	19.33473 AU				
retrograde	1887 Jan 16 20:58	12° $\mathring{U}$ 29'23		conjunction	1894 Nov 08 01:30	15° $\mathring{M}$ 39'34	0°20'36
opposition	1887 Mar 31 11:56	10° $\mathring{U}$ 27'29	0°43'43	minimum elong	1894 Nov 08 01:30	15° $\mathring{M}$ 39'34	0°20'36
min. Earth dist.	1887 Apr 01 04:29	10° $\mathring{U}$ 25'42	17.34626 AU	max. Earth dist.	1894 Nov 07 18:21	15° $\mathring{M}$ 38'28	19.65217 AU
direct	1887 Jun 16 04:25	8° $\mathring{U}$ 21'29		retrograde	1895 Feb 23 00:54	19° $\mathring{M}$ 56'20	
				opposition	1895 May 08 19:44	17° $\mathring{M}$ 55'29	0°21'11
conjunction	1887 Oct 06 11:18	12° $\mathring{U}$ 52'47	0°38'20	min. Earth dist.	1895 May 09 00:43	17° $\mathring{M}$ 54'58	17.68158 AU
minimum elong	1887 Oct 06 11:18	12° $\mathring{U}$ 52'47	0°38'20	direct	1895 Jul 25 01:22	15° $\mathring{M}$ 51'29	
max. Earth dist.	1887 Oct 05 16:48	12° $\mathring{U}$ 49'52	19.35829 AU				
retrograde	1888 Jan 21 19:12	17° $\mathring{U}$ 14'53		conjunction	1895 Nov 12 20:38	20° $\mathring{M}$ 14'22	0°17'26
opposition	1888 Apr 04 13:43	15° $\mathring{U}$ 13'07	0°41'43	minimum elong	1895 Nov 12 20:38	20° $\mathring{M}$ 14'22	0°17'26
min. Earth dist.	1888 Apr 05 06:22	15° $\mathring{U}$ 11'19	17.37201 AU	max. Earth dist.	1895 Nov 12 16:23	20° $\mathring{M}$ 13'43	19.71201 AU
direct	1888 Jun 20 07:01	13° $\mathring{U}$ 07'16		retrograde	1896 Feb 27 20:03	24° $\mathring{M}$ 30'15	
				opposition	1896 May 12 19:01	22° $\mathring{M}$ 29'38	0°17'36
conjunction	1888 Oct 10 12:32	17° $\mathring{U}$ 37'55	0°36'25	min. Earth dist.	1896 May 12 22:15	22° $\mathring{M}$ 29'17	17.74284 AU
minimum elong	1888 Oct 10 12:32	17° $\mathring{U}$ 37'55	0°36'25	direct	1896 Jul 29 02:05	20° $\mathring{M}$ 26'02	
max. Earth dist.	1888 Oct 09 18:24	17° $\mathring{U}$ 35'03	19.38635 AU				
retrograde	1889 Jan 25 19:34	21° $\mathring{U}$ 59'23		conjunction	1896 Nov 16 14:46	24° $\mathring{M}$ 47'32	0°14'12
opposition	1889 Apr 09 15:23	19° $\mathring{U}$ 57'43	0°39'27	minimum elong	1896 Nov 16 14:46	24° $\mathring{M}$ 47'32	0°14'11
min. Earth dist.	1889 Apr 10 05:59	19° $\mathring{U}$ 56'09	17.40221 AU	behind sun begin	1896 Nov 16 11:28	24° $\mathring{M}$ 47'02	
direct	1889 Jun 25 11:39	17° $\mathring{U}$ 52'02		behind sun end	1896 Nov 16 18:03	24° $\mathring{M}$ 48'01	
				max. Earth dist.	1896 Nov 16 11:34	24° $\mathring{M}$ 47'03	19.77473 AU
conjunction	1889 Oct 15 12:57	22° $\mathring{U}$ 21'52	0°34'16	retrograde	1897 Mar 03 14:13	29° $\mathring{M}$ 02'33	
minimum elong	1889 Oct 15 12:57	22° $\mathring{U}$ 21'52	0°34'16	opposition	1897 May 17 18:01	27° $\mathring{M}$ 02'08	0°13'56
max. Earth dist.	1889 Oct 14 21:18	22° $\mathring{U}$ 19'25	19.41881 AU	min. Earth dist.	1897 May 17 19:42	27° $\mathring{M}$ 01'58	17.80681 AU
retrograde	1890 Jan 30 17:14	26° $\mathring{U}$ 42'40		direct	1897 Aug 03 00:40	24° $\mathring{M}$ 58'57	
opposition	1890 Apr 14 17:02	24° $\mathring{U}$ 41'06	0°36'55				
min. Earth dist.	1890 Apr 15 07:12	24° $\mathring{U}$ 39'35	17.43689 AU	conjunction	1897 Nov 21 08:02	29° $\mathring{M}$ 19'00	0°10'53
direct	1890 Jun 30 13:55	22° $\mathring{U}$ 35'36		minimum elong	1897 Nov 21 08:02	29° $\mathring{M}$ 19'00	0°10'53
				behind sun begin	1897 Nov 21 03:00	29° $\mathring{M}$ 18'15	
conjunction	1890 Oct 20 12:27	27° $\mathring{U}$ 04'30	0°31'53	behind sun end	1897 Nov 21 13:04	29° $\mathring{M}$ 18'55	19.83969 AU
minimum elong	1890 Oct 20 12:27	27° $\mathring{U}$ 04'30	0°31'54	max. Earth dist.	1897 Nov 21 07:26	29° $\mathring{M}$ 18'55	19.83969 AU
max. Earth dist.	1890 Oct 19 21:23	27° $\mathring{U}$ 02'08	19.45592 AU		1897 Dec 02 09:56	0° $\mathring{X}$	
	1890 Dec 10 06:56	0° $\mathring{M}$		retrograde	1898 Mar 08 08:41	3° $\mathring{X}$ 33'08	
retrograde	1891 Feb 04 16:06	1° $\mathring{M}$ 24'32		opposition	1898 May 22 16:26	1° $\mathring{X}$ 32'56	0°10'12

min. Earth dist.	1898 May 22 16:08	1°♏32'58	17.87244 AU	conjunction	1904 Dec 22 08:48	0°♏06'31	0°-12'-35
	1898 Jul 03 23:09	30°♏		minimum elong	1904 Dec 22 08:48	0°♏06'31	0°12'36
direct	1898 Aug 07 23:45	29°♏30'10		behind sun begin	1904 Dec 22 04:31	0°♏05'54	
	1898 Sep 11 02:14	0°♏		behind sun end	1904 Dec 22 13:05	0°♏07'09	
				max. Earth dist.	1904 Dec 22 18:57	0°♏08'03	20.30247 AU
conjunction	1898 Nov 26 00:29	3°♏48'44	0°07'31	retrograde	1905 Apr 08 21:20	4°♏14'24	
minimum elong	1898 Nov 26 00:29	3°♏48'44	0°07'31	opposition	1905 Jun 24 11:28	2°♏14'57	0°-15'-40
behind sun begin	1898 Nov 25 18:28	3°♏47'50		min. Earth dist.	1905 Jun 24 01:08	2°♏16'01	18.33467 AU
behind sun end	1898 Nov 26 06:29	3°♏49'38		direct	1905 Sep 09 15:17	0°♏14'38	
max. Earth dist.	1898 Nov 26 00:55	3°♏48'47	19.90592 AU				
retrograde	1899 Mar 13 01:52	8°♏01'58		conjunction	1905 Dec 26 19:03	4°♏22'26	0°-15'-42
opposition	1899 May 27 14:11	6°♏01'56	0°06'26	minimum elong	1905 Dec 26 19:03	4°♏22'26	0°15'43
min. Earth dist.	1899 May 27 12:52	6°♏02'04	17.93919 AU	behind sun begin	1905 Dec 26 17:19	4°♏22'11	
direct	1899 Aug 12 20:40	3°♏59'34		behind sun end	1905 Dec 26 20:47	4°♏22'42	
				max. Earth dist.	1905 Dec 27 06:46	4°♏24'12	20.36705 AU
conjunction	1899 Nov 30 16:10	8°♏16'38	0°04'08	retrograde	1906 Apr 13 11:54	8°♏29'30	
minimum elong	1899 Nov 30 16:10	8°♏16'38	0°04'09	opposition	1906 Jun 29 04:17	6°♏30'08	0°-19'-3
behind sun begin	1899 Nov 30 09:42	8°♏15'40		min. Earth dist.	1906 Jun 28 15:16	6°♏31'27	18.39909 AU
behind sun end	1899 Nov 30 22:39	8°♏17'36		direct	1906 Sep 14 08:12	4°♏30'08	
max. Earth dist.	1899 Nov 30 18:39	8°♏16'58	19.97291 AU				
retrograde	1900 Mar 17 19:27	12°♏28'57		conjunction	1906 Dec 31 04:41	8°♏36'31	0°-18'-41
opposition	1900 Jun 01 11:27	10°♏29'06	0°02'39	minimum elong	1906 Dec 31 04:40	8°♏36'31	0°18'42
min. Earth dist.	1900 Jun 01 07:58	10°♏29'27	18.00617 AU	max. Earth dist.	1906 Dec 31 18:15	8°♏38'33	20.43120 AU
direct	1900 Aug 17 18:17	8°♏27'07		retrograde	1907 Apr 17 22:43	12°♏42'49	
				opposition	1907 Jul 03 20:25	10°♏43'33	0°-22'-18
conjunction	1900 Dec 05 06:49	12°♏42'38	0°00'41	min. Earth dist.	1907 Jul 03 06:54	10°♏44'55	18.46312 AU
minimum elong	1900 Dec 05 06:49	12°♏42'38	0°00'41	direct	1907 Sep 18 22:04	8°♏43'55	
behind sun begin	1900 Dec 05 00:16	12°♏41'39					
behind sun end	1900 Dec 05 13:22	12°♏43'36		conjunction	1908 Jan 04 13:36	12°♏48'55	0°-21'-34
max. Earth dist.	1900 Dec 05 10:29	12°♏43'09	20.03983 AU	minimum elong	1908 Jan 04 13:36	12°♏48'55	0°21'35
desc. node	1901 Feb 15 05:04	16°♏21'20		max. Earth dist.	1908 Jan 05 04:25	12°♏51'08	20.49495 AU
retrograde	1901 Mar 22 11:25	16°♏54'03		retrograde	1908 Apr 21 12:18	16°♏54'31	
opposition	1901 Jun 06 08:14	14°♏54'19	0°-1'-7	opposition	1908 Jul 07 11:51	14°♏55'21	0°-25'-25
min. Earth dist.	1901 Jun 06 03:57	14°♏54'46	18.07306 AU	min. Earth dist.	1908 Jul 06 19:46	14°♏56'59	18.52642 AU
direct	1901 Aug 22 13:55	12°♏52'43		direct	1908 Sep 22 13:25	12°♏56'05	
conjunction	1901 Dec 09 20:42	17°♏06'40	0°-2'-47	conjunction	1909 Jan 07 21:47	16°♏59'47	0°-24'-19
minimum elong	1901 Dec 09 20:43	17°♏06'40	0°02'47	minimum elong	1909 Jan 07 21:47	16°♏59'47	0°24'20
behind sun begin	1901 Dec 09 14:11	17°♏05'42		max. Earth dist.	1909 Jan 08 14:30	17°♏02'16	20.55761 AU
behind sun end	1901 Dec 10 03:15	17°♏07'39		retrograde	1909 Apr 25 22:27	21°♏04'44	
max. Earth dist.	1901 Dec 10 02:08	17°♏07'28	20.10650 AU	min. Earth dist.	1909 Jul 11 10:27	19°♏07'21	18.58845 AU
retrograde	1902 Mar 27 03:49	21°♏17'11		opposition	1909 Jul 12 02:49	19°♏05'42	0°-28'-23
opposition	1902 Jun 11 04:02	19°♏17'34	0°-4'-52	direct	1909 Sep 27 01:29	17°♏06'49	
min. Earth dist.	1902 Jun 10 21:27	19°♏18'14	18.13935 AU				
direct	1902 Aug 27 10:19	17°♏16'17		conjunction	1910 Jan 12 05:31	21°♏09'15	0°-26'-55
				minimum elong	1910 Jan 12 05:31	21°♏09'15	0°26'55
conjunction	1902 Dec 14 09:39	21°♏28'41	0°-6'-7	max. Earth dist.	1910 Jan 12 23:07	21°♏11'51	20.61882 AU
minimum elong	1902 Dec 14 09:39	21°♏28'41	0°06'08	retrograde	1910 Apr 30 10:51	25°♏13'35	
behind sun begin	1902 Dec 14 03:25	21°♏27'46		opposition	1910 Jul 16 16:48	23°♏14'41	0°-31'-10
behind sun end	1902 Dec 14 15:53	21°♏29'37		min. Earth dist.	1910 Jul 15 22:18	23°♏16'32	18.64864 AU
max. Earth dist.	1902 Dec 14 16:24	21°♏29'41	20.17242 AU	direct	1910 Oct 01 15:05	21°♏16'09	
retrograde	1903 Mar 31 17:50	25°♏38'18					
opposition	1903 Jun 15 23:18	23°♏38'45	0°-8'-33	conjunction	1911 Jan 16 12:47	25°♏17'24	0°-29'-22
min. Earth dist.	1903 Jun 15 16:10	23°♏39'29	18.20499 AU	minimum elong	1911 Jan 16 12:47	25°♏17'24	0°29'23
direct	1903 Sep 01 04:19	21°♏37'47		max. Earth dist.	1911 Jan 17 07:59	25°♏20'14	20.67769 AU
				retrograde	1911 May 04 20:18	29°♏21'11	
conjunction	1903 Dec 18 21:39	25°♏48'38	0°-9'-23	opposition	1911 Jul 21 06:28	27°♏22'23	0°-33'-47
minimum elong	1903 Dec 18 21:39	25°♏48'38	0°09'25	min. Earth dist.	1911 Jul 20 12:02	27°♏24'14	18.70623 AU
behind sun begin	1903 Dec 18 16:08	25°♏47'49		direct	1911 Oct 06 01:53	25°♏24'13	
behind sun end	1903 Dec 19 03:09	25°♏49'27					
max. Earth dist.	1903 Dec 19 06:02	25°♏49'53	20.23774 AU	conjunction	1912 Jan 20 19:28	29°♏24'20	0°-31'-39
retrograde	1904 Apr 04 09:09	29°♏57'21		minimum elong	1912 Jan 20 19:28	29°♏24'20	0°31'40
opposition	1904 Jun 19 17:39	27°♏57'52	0°-12'-9	max. Earth dist.	1912 Jan 21 15:07	29°♏27'13	20.73377 AU
min. Earth dist.	1904 Jun 19 07:58	27°♏58'51	18.26996 AU		1912 Jan 30 22:38	0°♏	
direct	1904 Sep 04 23:11	25°♏57'13		retrograde	1912 May 08 07:34	3°♏27'36	
	1904 Dec 20 13:33	0°♏		opposition	1912 Jul 24 19:28	1°♏28'55	0°-36'-13
				min. Earth dist.	1912 Jul 23 23:14	1°♏30'56	18.76066 AU

	1912 Sep 04 16:55	30° $\mathbb{R}$ $\mathbb{Z}$		minimum elong	1920 Feb 21 14:07	1° $\mathbb{H}$ 39'52	0°43'13
direct	1912 Oct 09 13:43	29° $\mathbb{Z}$ 31'03		max. Earth dist.	1920 Feb 22 13:19	1° $\mathbb{H}$ 43'13	21.03178 AU
	1912 Nov 12 08:37	0° $\mathbb{Z}$		retrograde	1920 Jun 10 04:07	5° $\mathbb{H}$ 40'29	
				min. Earth dist.	1920 Aug 26 08:17	3° $\mathbb{H}$ 43'51	19.04242 AU
conjunction	1913 Jan 24 01:57	3° $\mathbb{Z}$ 30'06	0°-33'-46	opposition	1920 Aug 27 07:12	3° $\mathbb{H}$ 41'34	0°-48'-2
minimum elong	1913 Jan 24 01:57	3° $\mathbb{Z}$ 30'06	0°33'48	direct	1920 Nov 11 07:16	1° $\mathbb{H}$ 44'58	
max. Earth dist.	1913 Jan 24 22:55	3° $\mathbb{Z}$ 33'10	20.78625 AU				
retrograde	1913 May 12 16:33	7° $\mathbb{Z}$ 32'54		conjunction	1921 Feb 24 18:36	5° $\mathbb{H}$ 37'48	0°-43'-43
opposition	1913 Jul 29 07:59	5° $\mathbb{Z}$ 34'16	0°-38'-28	minimum elong	1921 Feb 24 18:35	5° $\mathbb{H}$ 37'48	0°43'43
min. Earth dist.	1913 Jul 28 12:05	5° $\mathbb{Z}$ 36'15	18.81126 AU	max. Earth dist.	1921 Feb 25 18:47	5° $\mathbb{H}$ 41'17	21.05126 AU
direct	1913 Oct 13 23:23	3° $\mathbb{Z}$ 36'42		retrograde	1921 Jun 14 10:56	9° $\mathbb{H}$ 38'20	
				opposition	1921 Aug 31 15:26	7° $\mathbb{H}$ 39'23	0°-48'-30
conjunction	1914 Jan 28 08:01	7° $\mathbb{Z}$ 34'43	0°-35'-43	min. Earth dist.	1921 Aug 30 17:03	7° $\mathbb{H}$ 41'37	19.06017 AU
minimum elong	1914 Jan 28 08:01	7° $\mathbb{Z}$ 34'43	0°35'44	direct	1921 Nov 15 12:50	5° $\mathbb{H}$ 42'53	
max. Earth dist.	1914 Jan 29 04:54	7° $\mathbb{Z}$ 37'46	20.83474 AU				
retrograde	1914 May 17 02:40	11° $\mathbb{Z}$ 37'06		conjunction	1922 Feb 28 23:01	9° $\mathbb{H}$ 35'21	0°-44'-2
opposition	1914 Aug 02 19:48	9° $\mathbb{Z}$ 38'30	0°-40'-30	minimum elong	1922 Feb 28 23:01	9° $\mathbb{H}$ 35'21	0°44'03
min. Earth dist.	1914 Aug 01 22:32	9° $\mathbb{Z}$ 40'37	18.85751 AU	max. Earth dist.	1922 Mar 01 22:35	9° $\mathbb{H}$ 38'44	21.06731 AU
direct	1914 Oct 18 09:40	7° $\mathbb{Z}$ 41'09		retrograde	1922 Jun 18 19:50	13° $\mathbb{H}$ 35'54	
				opposition	1922 Sep 04 23:22	11° $\mathbb{H}$ 36'54	0°-48'-44
conjunction	1915 Feb 01 13:50	11° $\mathbb{Z}$ 38'14	0°-37'-28	min. Earth dist.	1922 Sep 04 00:25	11° $\mathbb{H}$ 39'12	19.07435 AU
minimum elong	1915 Feb 01 13:50	11° $\mathbb{Z}$ 38'14	0°37'29	direct	1922 Nov 19 18:06	9° $\mathbb{H}$ 40'31	
max. Earth dist.	1915 Feb 02 11:41	11° $\mathbb{Z}$ 41'25	20.87849 AU				
	1915 Apr 10 18:54	15° $\mathbb{Z}$		conjunction	1923 Mar 05 03:32	13° $\mathbb{H}$ 32'43	0°-44'-8
retrograde	1915 May 21 10:48	15° $\mathbb{Z}$ 40'11		minimum elong	1923 Mar 05 03:31	13° $\mathbb{H}$ 32'43	0°44'10
	1915 Jul 02 11:34	15° $\mathbb{R}$ $\mathbb{Z}$		max. Earth dist.	1923 Mar 06 03:50	13° $\mathbb{H}$ 36'11	21.07944 AU
min. Earth dist.	1915 Aug 06 10:21	13° $\mathbb{Z}$ 43'40	18.89892 AU	retrograde	1923 Jun 23 02:41	17° $\mathbb{H}$ 33'19	
opposition	1915 Aug 07 07:05	13° $\mathbb{Z}$ 41'36	0°-42'-19	min. Earth dist.	1923 Sep 08 08:49	15° $\mathbb{H}$ 36'32	19.08448 AU
direct	1915 Oct 22 18:11	11° $\mathbb{Z}$ 44'27		opposition	1923 Sep 09 07:05	15° $\mathbb{H}$ 34'19	0°-48'-44
	1916 Jan 25 02:44	15° $\mathbb{Z}$		direct	1923 Nov 23 23:29	13° $\mathbb{H}$ 38'02	
conjunction	1916 Feb 05 19:15	15° $\mathbb{Z}$ 40'37	0°-39'-1	conjunction	1924 Mar 08 08:11	17° $\mathbb{H}$ 30'03	0°-44'-2
minimum elong	1916 Feb 05 19:15	15° $\mathbb{Z}$ 40'37	0°39'03	minimum elong	1924 Mar 08 08:11	17° $\mathbb{H}$ 30'03	0°44'03
max. Earth dist.	1916 Feb 06 16:49	15° $\mathbb{Z}$ 43'45	20.91761 AU	max. Earth dist.	1924 Mar 09 07:34	17° $\mathbb{H}$ 33'24	21.08764 AU
retrograde	1916 May 24 20:13	19° $\mathbb{Z}$ 42'12		retrograde	1924 Jun 26 12:02	21° $\mathbb{H}$ 30'48	
opposition	1916 Aug 10 17:49	17° $\mathbb{Z}$ 43'34	0°-43'-55	opposition	1924 Sep 12 14:35	19° $\mathbb{H}$ 31'47	0°-48'-30
min. Earth dist.	1916 Aug 09 19:54	17° $\mathbb{Z}$ 45'45	18.93572 AU	min. Earth dist.	1924 Sep 11 16:11	19° $\mathbb{H}$ 34'02	19.09053 AU
direct	1916 Oct 26 03:18	15° $\mathbb{Z}$ 46'33		direct	1924 Nov 27 04:03	17° $\mathbb{H}$ 35'35	
conjunction	1917 Feb 09 00:19	19° $\mathbb{Z}$ 41'53	0°-40'-23	conjunction	1925 Mar 12 13:12	21° $\mathbb{H}$ 27'32	0°-43'-44
minimum elong	1917 Feb 09 00:19	19° $\mathbb{Z}$ 41'53	0°40'23	minimum elong	1925 Mar 12 13:12	21° $\mathbb{H}$ 27'32	0°43'46
max. Earth dist.	1917 Feb 09 22:57	19° $\mathbb{Z}$ 45'10	20.95205 AU	max. Earth dist.	1925 Mar 13 12:56	21° $\mathbb{H}$ 30'56	21.09132 AU
retrograde	1917 May 29 03:27	23° $\mathbb{Z}$ 43'08		retrograde	1925 Jun 30 19:12	25° $\mathbb{H}$ 28'29	
min. Earth dist.	1917 Aug 14 06:37	21° $\mathbb{Z}$ 46'34	18.96803 AU	opposition	1925 Sep 16 21:58	23° $\mathbb{H}$ 29'27	0°-48'-3
opposition	1917 Aug 15 04:02	21° $\mathbb{Z}$ 44'26	0°-45'-18	min. Earth dist.	1925 Sep 16 00:37	23° $\mathbb{H}$ 31'35	19.09176 AU
direct	1917 Oct 30 10:32	19° $\mathbb{Z}$ 47'33		direct	1925 Dec 01 09:02	21° $\mathbb{H}$ 33'19	
conjunction	1918 Feb 13 05:08	23° $\mathbb{Z}$ 42'06	0°-41'-31	conjunction	1926 Mar 16 18:30	25° $\mathbb{H}$ 25'17	0°-43'-13
minimum elong	1918 Feb 13 05:08	23° $\mathbb{Z}$ 42'06	0°41'33	minimum elong	1926 Mar 16 18:30	25° $\mathbb{H}$ 25'17	0°43'13
max. Earth dist.	1918 Feb 14 03:30	23° $\mathbb{Z}$ 45'20	20.98237 AU	max. Earth dist.	1926 Mar 17 16:46	25° $\mathbb{H}$ 28'28	21.09012 AU
retrograde	1918 Jun 02 12:30	27° $\mathbb{Z}$ 43'04		retrograde	1926 Jul 05 05:02	29° $\mathbb{H}$ 26'29	
opposition	1918 Aug 19 13:24	25° $\mathbb{Z}$ 44'17	0°-46'-26	min. Earth dist.	1926 Sep 20 08:07	27° $\mathbb{H}$ 29'31	19.08792 AU
min. Earth dist.	1918 Aug 18 15:01	25° $\mathbb{Z}$ 46'30	18.99643 AU	opposition	1926 Sep 21 05:03	27° $\mathbb{H}$ 27'25	0°-47'-22
direct	1918 Nov 03 18:27	23° $\mathbb{Z}$ 47'28		direct	1926 Dec 05 13:51	25° $\mathbb{H}$ 31'18	
conjunction	1919 Feb 17 09:48	27° $\mathbb{Z}$ 41'22	0°-42'-28	conjunction	1927 Mar 21 00:14	29° $\mathbb{H}$ 23'23	0°-42'-30
minimum elong	1919 Feb 17 09:47	27° $\mathbb{Z}$ 41'22	0°42'28	minimum elong	1927 Mar 21 00:14	29° $\mathbb{H}$ 23'23	0°42'31
max. Earth dist.	1919 Feb 18 09:16	27° $\mathbb{Z}$ 44'45	21.00879 AU	max. Earth dist.	1927 Mar 21 22:24	29° $\mathbb{H}$ 26'33	21.08345 AU
	1919 Apr 01 01:44	0° $\mathbb{H}$			1927 Mar 31 17:23	0° $\mathbb{Y}$	
retrograde	1919 Jun 06 19:12	1° $\mathbb{H}$ 42'07		retrograde	1927 Jul 09 12:31	3° $\mathbb{Y}$ 24'52	
	1919 Aug 16 22:11	30° $\mathbb{R}$ $\mathbb{Z}$		opposition	1927 Sep 25 12:17	1° $\mathbb{Y}$ 25'44	0°-46'-27
opposition	1919 Aug 23 22:32	29° $\mathbb{Z}$ 43'16	0°-47'-21	min. Earth dist.	1927 Sep 24 16:36	1° $\mathbb{Y}$ 27'43	19.07839 AU
min. Earth dist.	1919 Aug 23 00:32	29° $\mathbb{Z}$ 45'28	19.02110 AU		1927 Nov 04 10:36	30° $\mathbb{R}$ $\mathbb{H}$	
direct	1919 Nov 08 00:35	27° $\mathbb{Z}$ 46'34		direct	1927 Dec 09 18:15	29° $\mathbb{H}$ 29'37	
	1920 Jan 22 18:29	0° $\mathbb{H}$			1928 Jan 13 08:41	0° $\mathbb{Y}$	
conjunction	1920 Feb 21 14:07	1° $\mathbb{H}$ 39'52	0°-43'-12	conjunction	1928 Mar 24 06:07	3° $\mathbb{Y}$ 21'52	0°-41'-34

minimum elong	1928 Mar 24 06:07	3° $\Upsilon$ 21'52	0°41'35	minimum elong	1936 Apr 25 21:45	5° $\text{8}$ 29'31	0°27'19
max. Earth dist.	1928 Mar 25 02:31	3° $\Upsilon$ 24'46	21.07117 AU	max. Earth dist.	1936 Apr 26 09:17	5° $\text{8}$ 31'10	20.80782 AU
retrograde	1928 Jul 12 22:35	7° $\Upsilon$ 23'42		retrograde	1936 Aug 15 02:35	9° $\text{8}$ 35'31	
opposition	1928 Sep 28 19:26	5° $\Upsilon$ 24'27	0°-45'-19	opposition	1936 Oct 31 04:38	7° $\text{8}$ 34'59	0°-28'-47
min. Earth dist.	1928 Sep 28 00:28	5° $\Upsilon$ 26'21	19.06320 AU	min. Earth dist.	1936 Oct 30 18:25	7° $\text{8}$ 36'02	18.78451 AU
direct	1928 Dec 12 23:57	3° $\Upsilon$ 28'14		direct	1937 Jan 13 21:32	5° $\text{8}$ 37'13	
conjunction	1929 Mar 28 12:36	7° $\Upsilon$ 20'44	0°-40'-26	conjunction	1937 Apr 30 08:38	9° $\text{8}$ 34'46	0°-24'-46
minimum elong	1929 Mar 28 12:36	7° $\Upsilon$ 20'44	0°40'27	minimum elong	1937 Apr 30 08:38	9° $\text{8}$ 34'46	0°24'47
max. Earth dist.	1929 Mar 29 08:44	7° $\Upsilon$ 23'37	21.05310 AU	max. Earth dist.	1937 Apr 30 19:44	9° $\text{8}$ 36'22	20.76044 AU
retrograde	1929 Jul 17 06:26	11° $\Upsilon$ 22'55		retrograde	1937 Aug 19 13:48	13° $\text{8}$ 41'29	
min. Earth dist.	1929 Oct 02 08:48	9° $\Upsilon$ 25'18	19.04232 AU	opposition	1937 Nov 04 12:33	11° $\text{8}$ 40'52	0°-25'-54
opposition	1929 Oct 03 02:22	9° $\Upsilon$ 23'32	0°-43'-57	min. Earth dist.	1937 Nov 04 03:36	11° $\text{8}$ 41'47	18.73566 AU
direct	1929 Dec 17 04:19	7° $\Upsilon$ 27'12		direct	1938 Jan 18 04:53	9° $\text{8}$ 42'53	
conjunction	1930 Apr 01 19:20	11° $\Upsilon$ 20'01	0°-39'-6	conjunction	1938 May 04 20:09	13° $\text{8}$ 41'28	0°-22'-6
minimum elong	1930 Apr 01 19:20	11° $\Upsilon$ 20'01	0°39'08	minimum elong	1938 May 04 20:09	13° $\text{8}$ 41'28	0°22'07
max. Earth dist.	1930 Apr 02 13:32	11° $\Upsilon$ 22'37	21.02976 AU	max. Earth dist.	1938 May 05 04:39	13° $\text{8}$ 42'41	20.71030 AU
retrograde	1930 Jul 21 16:09	15° $\Upsilon$ 22'35			1938 May 27 21:01	15° $\text{8}$	
opposition	1930 Oct 07 09:20	13° $\Upsilon$ 23'02	0°-42'-22	retrograde	1938 Aug 24 02:09	17° $\text{8}$ 48'59	
min. Earth dist.	1930 Oct 06 16:37	13° $\Upsilon$ 24'43	19.01648 AU	opposition	1938 Nov 08 21:02	15° $\text{8}$ 48'15	0°-22'-53
direct	1930 Dec 21 10:18	11° $\Upsilon$ 26'31		min. Earth dist.	1938 Nov 08 13:45	15° $\text{8}$ 49'01	18.68402 AU
conjunction	1931 Apr 06 02:22	15° $\Upsilon$ 19'45	0°-37'-35	direct	1938 Nov 28 20:29	15° $\text{R}$ $\text{8}$	
minimum elong	1931 Apr 06 02:22	15° $\Upsilon$ 19'45	0°37'36		1939 Jan 22 12:05	13° $\text{8}$ 50'01	
max. Earth dist.	1931 Apr 06 20:28	15° $\Upsilon$ 22'20	21.00155 AU		1939 Mar 16 09:13	15° $\text{8}$	
retrograde	1931 Jul 26 00:36	19° $\Upsilon$ 22'46		conjunction	1939 May 09 08:33	17° $\text{8}$ 49'45	0°-19'-18
opposition	1931 Oct 11 16:18	17° $\Upsilon$ 23'01	0°-40'-35	minimum elong	1939 May 09 08:33	17° $\text{8}$ 49'45	0°19'19
min. Earth dist.	1931 Oct 11 00:45	17° $\Upsilon$ 24'36	18.98608 AU	max. Earth dist.	1939 May 09 16:27	17° $\text{8}$ 50'52	20.65705 AU
direct	1931 Dec 25 15:28	15° $\Upsilon$ 26'20		retrograde	1939 Aug 28 14:27	21° $\text{8}$ 58'04	
conjunction	1932 Apr 09 09:53	19° $\Upsilon$ 20'02	0°-35'-52	opposition	1939 Nov 13 05:57	19° $\text{8}$ 57'15	0°-19'-42
minimum elong	1932 Apr 09 09:53	19° $\Upsilon$ 20'02	0°35'54	min. Earth dist.	1939 Nov 13 00:03	19° $\text{8}$ 57'52	18.62907 AU
max. Earth dist.	1932 Apr 10 02:07	19° $\Upsilon$ 22'21	20.96934 AU	direct	1940 Jan 26 20:26	17° $\text{8}$ 58'45	
retrograde	1932 Jul 29 10:14	23° $\Upsilon$ 23'33		conjunction	1940 May 12 21:53	21° $\text{8}$ 59'39	0°-16'-22
opposition	1932 Oct 14 23:14	21° $\Upsilon$ 23'37	0°-38'-36	minimum elong	1940 May 12 21:53	21° $\text{8}$ 59'39	0°16'22
min. Earth dist.	1932 Oct 14 08:35	21° $\Upsilon$ 25'06	18.95203 AU	max. Earth dist.	1940 May 13 02:43	22° $\text{8}$ 00'21	20.60050 AU
direct	1932 Dec 28 21:01	19° $\Upsilon$ 26'42		retrograde	1940 Sep 01 04:00	26° $\text{8}$ 08'49	
conjunction	1933 Apr 13 18:02	23° $\Upsilon$ 21'00	0°-33'-59	opposition	1940 Nov 16 15:17	24° $\text{8}$ 07'52	0°-16'-24
minimum elong	1933 Apr 13 18:02	23° $\Upsilon$ 21'00	0°33'59	min. Earth dist.	1940 Nov 16 11:29	24° $\text{8}$ 08'16	18.57078 AU
max. Earth dist.	1933 Apr 14 10:06	23° $\Upsilon$ 23'18	20.93347 AU	direct	1941 Jan 30 05:02	22° $\text{8}$ 09'03	
retrograde	1933 Aug 02 19:44	27° $\Upsilon$ 25'03		conjunction	1941 May 17 12:18	26° $\text{8}$ 11'13	0°-13'-20
opposition	1933 Oct 19 06:17	25° $\Upsilon$ 24'57	0°-36'-25	minimum elong	1941 May 17 12:18	26° $\text{8}$ 11'13	0°13'22
min. Earth dist.	1933 Oct 18 16:45	25° $\Upsilon$ 26'20	18.91444 AU	behind sun begin	1941 May 17 08:34	26° $\text{8}$ 10'41	
direct	1934 Jan 02 03:05	23° $\Upsilon$ 27'50		behind sun end	1941 May 17 16:02	26° $\text{8}$ 11'45	
conjunction	1934 Apr 18 02:37	27° $\Upsilon$ 22'48	0°-31'-55	max. Earth dist.	1941 May 17 16:07	26° $\text{8}$ 11'45	20.54039 AU
minimum elong	1934 Apr 18 02:37	27° $\Upsilon$ 22'48	0°31'56		1941 Aug 07 15:26	0° $\text{II}$	
max. Earth dist.	1934 Apr 18 16:36	27° $\Upsilon$ 24'48	20.89442 AU	retrograde	1941 Sep 05 17:36	0° $\text{II}$ 21'13	
retrograde	1934 Jun 06 15:37	0° $\text{8}$			1941 Oct 05 02:15	30° $\text{R}$ $\text{8}$	
opposition	1934 Aug 07 05:24	1° $\text{8}$ 27'27		opposition	1941 Nov 21 01:06	28° $\text{8}$ 20'07	0°-13'00
min. Earth dist.	1934 Oct 10 00:41	30° $\text{R}$ $\Upsilon$		min. Earth dist.	1941 Nov 20 22:44	28° $\text{8}$ 20'22	18.50886 AU
direct	1934 Oct 23 13:25	29° $\Upsilon$ 27'11	0°-34'-3	direct	1942 Feb 03 14:50	26° $\text{8}$ 20'58	
conjunction	1935 Apr 22 11:57	1° $\text{8}$ 25'35	0°-29'-41		1942 May 15 04:02	0° $\text{II}$	
minimum elong	1935 Apr 22 11:57	1° $\text{8}$ 25'35	0°29'42	conjunction	1942 May 22 03:18	0° $\text{II}$ 24'24	0°-10'-13
max. Earth dist.	1935 Apr 23 01:41	1° $\text{8}$ 27'33	20.85243 AU	minimum elong	1942 May 22 03:18	0° $\text{II}$ 24'24	0°10'13
retrograde	1935 Aug 11 15:49	5° $\text{8}$ 30'52		behind sun begin	1942 May 21 21:59	0° $\text{II}$ 23'39	
opposition	1935 Oct 27 20:52	3° $\text{8}$ 30'28	0°-31'-30	behind sun end	1942 May 22 08:36	0° $\text{II}$ 25'09	
min. Earth dist.	1935 Oct 27 09:24	3° $\text{8}$ 31'39	18.83050 AU	max. Earth dist.	1942 May 22 03:51	0° $\text{II}$ 24'29	20.47693 AU
direct	1936 Jan 10 15:20	1° $\text{8}$ 32'56		retrograde	1942 Sep 10 07:42	4° $\text{II}$ 35'16	
conjunction	1936 Apr 25 21:45	5° $\text{8}$ 29'31	0°-27'-18	opposition	1942 Nov 25 11:26	2° $\text{II}$ 33'59	0°-9'-29
				min. Earth dist.	1942 Nov 25 11:18	2° $\text{II}$ 34'00	18.44392 AU
				direct	1943 Feb 08 00:53	0° $\text{II}$ 34'26	
				conjunction	1943 May 26 19:18	4° $\text{II}$ 39'13	0°-7'-1
				minimum elong	1943 May 26 19:18	4° $\text{II}$ 39'13	0°07'02

behind sun begin	1943 May 26 13:05	4°II38'20		retrograde	1949 Oct 11 05:14	5°☾01'06	
behind sun end	1943 May 27 01:32	4°II40'07		opposition	1949 Dec 25 02:32	2°☾58'44	0°16'04
max. Earth dist.	1943 May 26 19:00	4°II39'11	20.41068 AU	min. Earth dist.	1949 Dec 25 11:54	2°☾57'43	17.96321 AU
retrograde	1943 Sep 14 22:36	8°II50'55		direct	1950 Mar 09 19:24	0°☾56'16	
opposition	1943 Nov 29 22:09	6°II49'28	0°-5'-54				
min. Earth dist.	1943 Nov 29 23:13	6°II49'21	18.37649 AU	conjunction	1950 Jun 27 10:17	5°☾11'33	0°16'05
direct	1944 Feb 12 12:15	4°II49'31		minimum elong	1950 Jun 27 10:17	5°☾11'33	0°16'06
				max. Earth dist.	1950 Jun 26 21:08	5°☾09'36	19.93073 AU
conjunction	1944 May 30 11:58	8°II55'40	0°-3'-46	retrograde	1950 Oct 16 00:18	9°☾29'23	
minimum elong	1944 May 30 11:58	8°II55'40	0°03'47	opposition	1950 Dec 29 17:44	7°☾26'56	0°19'37
behind sun begin	1944 May 30 05:17	8°II54'43		min. Earth dist.	1950 Dec 30 05:13	7°☾25'42	17.89857 AU
behind sun end	1944 May 30 18:39	8°II56'38		direct	1951 Mar 14 10:41	5°☾24'07	
max. Earth dist.	1944 May 30 08:33	8°II55'13	20.34240 AU				
retrograde	1944 Sep 18 13:31	13°II08'15		conjunction	1951 Jul 02 09:07	9°☾41'01	0°19'14
opposition	1944 Dec 03 09:29	11°II06'36	0°-2'-15	minimum elong	1951 Jul 02 09:07	9°☾41'01	0°19'13
min. Earth dist.	1944 Dec 03 12:48	11°II06'15	18.30749 AU	max. Earth dist.	1951 Jul 01 19:10	9°☾38'56	19.86711 AU
direct	1945 Feb 15 23:25	9°II06'11		retrograde	1951 Oct 20 20:56	13°☾59'41	
				opposition	1952 Jan 03 09:26	11°☾57'12	0°23'05
conjunction	1945 Jun 04 05:44	13°II13'48	0°00'-24	min. Earth dist.	1952 Jan 03 21:17	11°☾55'55	17.83591 AU
minimum elong	1945 Jun 04 05:43	13°II13'48	0°00'24	direct	1952 Mar 18 04:12	9°☾54'04	
behind sun begin	1945 Jun 03 22:59	13°II12'50					
behind sun end	1945 Jun 04 12:26	13°II14'46		conjunction	1952 Jul 06 08:50	14°☾12'33	0°22'17
max. Earth dist.	1945 Jun 04 01:34	13°II13'14	20.27281 AU	minimum elong	1952 Jul 06 08:50	14°☾12'33	0°22'18
asc. node	1945 Jul 19 07:09	15°II43'24		max. Earth dist.	1952 Jul 05 16:45	14°☾10'07	19.80531 AU
retrograde	1945 Sep 23 05:56	17°II27'14		retrograde	1952 Oct 24 16:47	18°☾32'02	
opposition	1945 Dec 07 21:08	15°II25'24	0°01'25	opposition	1953 Jan 07 02:10	16°☾29'31	0°26'25
min. Earth dist.	1945 Dec 08 01:22	15°II24'57	18.23751 AU	min. Earth dist.	1953 Jan 07 16:24	16°☾27'58	17.77509 AU
direct	1946 Feb 20 12:13	13°II24'34		direct	1953 Mar 22 21:22	14°☾26'03	
conjunction	1946 Jun 09 00:04	17°II33'39	0°03'00	conjunction	1953 Jul 11 09:23	18°☾46'05	0°25'13
minimum elong	1946 Jun 09 00:04	17°II33'39	0°02'59	minimum elong	1953 Jul 11 09:23	18°☾46'05	0°25'14
behind sun begin	1946 Jun 08 17:19	17°II32'41		max. Earth dist.	1953 Jul 10 16:02	18°☾43'27	19.74530 AU
behind sun end	1946 Jun 09 06:48	17°II34'37		retrograde	1953 Oct 29 14:19	23°☾06'20	
max. Earth dist.	1946 Jun 08 17:01	17°II32'38	20.20271 AU	opposition	1954 Jan 11 19:30	21°☾03'46	0°29'38
retrograde	1946 Sep 27 22:01	21°II47'58		min. Earth dist.	1954 Jan 12 10:06	21°☾02'11	17.71593 AU
opposition	1946 Dec 12 09:35	19°II45'57	0°05'07	direct	1954 Mar 27 17:31	18°☾59'58	
min. Earth dist.	1946 Dec 12 15:57	19°II45'17	18.16753 AU				
direct	1947 Feb 25 00:30	17°II44'40		conjunction	1954 Jul 16 10:42	23°☾21'30	0°28'01
				minimum elong	1954 Jul 16 10:42	23°☾21'30	0°28'01
conjunction	1947 Jun 13 19:16	21°II55'16	0°06'19	max. Earth dist.	1954 Jul 15 15:37	23°☾18'36	19.68691 AU
minimum elong	1947 Jun 13 19:17	21°II55'16	0°06'19	retrograde	1954 Nov 03 10:58	27°☾42'26	
behind sun begin	1947 Jun 13 12:54	21°II54'21		opposition	1955 Jan 16 13:50	25°☾39'50	0°32'40
behind sun end	1947 Jun 14 01:40	21°II56'12		min. Earth dist.	1955 Jan 17 06:40	25°☾38'00	17.65859 AU
max. Earth dist.	1947 Jun 13 11:44	21°II54'11	20.13290 AU	direct	1955 Apr 01 12:50	23°☾35'40	
retrograde	1947 Oct 02 16:05	26°II10'28					
opposition	1947 Dec 16 22:34	24°II08'19	0°08'48	conjunction	1955 Jul 21 12:34	27°☾58'38	0°30'39
min. Earth dist.	1947 Dec 17 05:28	24°II07'34	18.09806 AU	minimum elong	1955 Jul 21 12:34	27°☾58'38	0°30'40
direct	1948 Feb 29 14:23	22°II06'37		max. Earth dist.	1955 Jul 20 15:54	27°☾55'28	19.63057 AU
					1955 Aug 24 18:01	0°♂	
conjunction	1948 Jun 17 15:24	26°II18'45	0°09'37	retrograde	1955 Nov 08 09:29	2°♂20'12	
minimum elong	1948 Jun 17 15:24	26°II18'45	0°09'36	opposition	1956 Jan 21 08:42	0°♂17'31	0°35'31
behind sun begin	1948 Jun 17 09:51	26°II17'57		min. Earth dist.	1956 Jan 22 01:47	0°♂15'40	17.60333 AU
behind sun end	1948 Jun 17 20:57	26°II19'34			1956 Jan 28 02:00	30°♂☾	
max. Earth dist.	1948 Jun 17 05:11	26°II17'15	20.06393 AU	direct	1956 Apr 05 11:22	28°☾13'00	
	1948 Aug 30 15:36	0°☾			1956 Jun 10 01:45	0°♂	
retrograde	1948 Oct 06 09:51	0°☾34'50					
	1948 Nov 12 13:32	30°♂II		conjunction	1956 Jul 25 15:14	2°♂37'19	0°33'07
opposition	1948 Dec 20 12:12	28°II32'33	0°12'28	minimum elong	1956 Jul 25 15:14	2°♂37'19	0°33'06
min. Earth dist.	1948 Dec 20 21:15	28°II31'34	18.02984 AU	max. Earth dist.	1956 Jul 24 17:30	2°♂33'59	19.57641 AU
direct	1949 Mar 05 04:09	26°II30'26		retrograde	1956 Nov 12 06:51	6°♂59'26	
	1949 Jun 10 04:05	0°☾		opposition	1957 Jan 25 04:19	4°♂56'42	0°38'08
				min. Earth dist.	1957 Jan 25 23:24	4°♂54'37	17.55060 AU
conjunction	1949 Jun 22 12:33	0°☾44'10	0°12'53	direct	1957 Apr 10 08:21	2°♂51'49	
minimum elong	1949 Jun 22 12:33	0°☾44'10	0°12'52				
behind sun begin	1949 Jun 22 08:31	0°☾43'34		conjunction	1957 Jul 30 18:16	7°♂17'24	0°35'21
behind sun end	1949 Jun 22 16:36	0°☾44'45		minimum elong	1957 Jul 30 18:16	7°♂17'24	0°35'21
max. Earth dist.	1949 Jun 22 01:42	0°☾42'33	19.99646 AU	max. Earth dist.	1957 Jul 29 18:52	7°♂13'48	19.52526 AU



























































































































retrograde	1957 Nov 17 06:27	11°♈40'02		conjunction	1965 Sep 08 02:30	15°♍13'50	0°43'56
opposition	1958 Jan 30 00:33	9°♈37'13	0°40'31	minimum elong	1965 Sep 08 02:30	15°♍13'50	0°43'56
min. Earth dist.	1958 Jan 30 19:42	9°♈35'07	17.50119 AU	retrograde	1965 Dec 25 06:06	19°♍38'03	
direct	1958 Apr 15 08:27	7°♈31'59		opposition	1966 Mar 08 15:02	17°♍35'29	0°48'55
				min. Earth dist.	1966 Mar 09 11:31	17°♍33'14	17.29214 AU
conjunction	1958 Aug 04 21:36	11°♈58'45	0°37'22	direct	1966 May 23 16:37	15°♍29'01	
minimum elong	1958 Aug 04 21:36	11°♈58'45	0°37'22	max. Earth dist.	1966 Sep 12 07:40	19°♍57'50	19.29125 AU
max. Earth dist.	1958 Aug 03 22:09	11°♈55'07	19.47760 AU				
	1958 Sep 27 09:14	15°♈		conjunction	1966 Sep 13 06:31	20°♍01'26	0°43'42
retrograde	1958 Nov 22 04:49	16°♈21'48		minimum elong	1966 Sep 13 06:31	20°♍01'26	0°43'41
	1959 Jan 18 22:53	15°♈♈		retrograde	1966 Dec 30 07:30	24°♍25'32	
opposition	1959 Feb 03 21:30	14°♈18'55	0°42'39	opposition	1967 Mar 13 16:00	22°♍23'06	0°48'29
min. Earth dist.	1959 Feb 04 18:03	14°♈16'40	17.45562 AU	min. Earth dist.	1967 Mar 14 11:34	22°♍20'58	17.29243 AU
direct	1959 Apr 20 06:57	12°♈13'21		direct	1967 May 28 21:37	20°♍16'43	
	1959 Jul 13 05:06	15°♈		max. Earth dist.	1967 Sep 17 11:33	24°♍45'37	19.29410 AU
max. Earth dist.	1959 Aug 09 00:18	16°♈37'20	19.43428 AU				
				conjunction	1967 Sep 18 10:26	24°♍49'13	0°43'09
conjunction	1959 Aug 10 01:17	16°♈41'12	0°39'08	minimum elong	1967 Sep 18 10:26	24°♍49'13	0°43'09
minimum elong	1959 Aug 10 01:17	16°♈41'12	0°39'08	retrograde	1968 Jan 04 06:14	29°♍13'06	
retrograde	1959 Nov 27 04:47	21°♈04'37		opposition	1968 Mar 17 17:16	27°♍10'49	0°47'43
opposition	1960 Feb 08 18:47	19°♈01'40	0°44'29	min. Earth dist.	1968 Mar 18 13:12	27°♍08'39	17.29786 AU
min. Earth dist.	1960 Feb 09 15:19	18°♈59'25	17.41473 AU	direct	1968 Jun 02 00:36	25°♍04'29	
direct	1960 Apr 24 07:47	16°♈55'48					
max. Earth dist.	1960 Aug 13 05:04	21°♈20'52	19.39579 AU	conjunction	1968 Sep 22 14:01	29°♍36'57	0°42'19
				minimum elong	1968 Sep 22 14:01	29°♍36'57	0°42'18
conjunction	1960 Aug 14 05:24	21°♈24'39	0°40'39	max. Earth dist.	1968 Sep 21 16:03	29°♍33'29	19.30199 AU
minimum elong	1960 Aug 14 05:24	21°♈24'39	0°40'39		1968 Sep 28 16:08	0°♊	
retrograde	1960 Dec 01 04:20	25°♈48'21		retrograde	1969 Jan 08 07:28	4°♊00'31	
opposition	1961 Feb 12 16:55	23°♈45'23	0°46'02	opposition	1969 Mar 22 18:49	1°♊58'22	0°46'37
min. Earth dist.	1961 Feb 13 14:11	23°♈43'03	17.37894 AU	min. Earth dist.	1969 Mar 23 13:19	1°♊56'21	17.30802 AU
direct	1961 Apr 29 07:50	21°♈39'16			1969 May 20 20:57	30°♈♈	
max. Earth dist.	1961 Aug 18 07:50	26°♈05'00	19.36284 AU	direct	1969 Jun 07 06:34	29°♍52'08	
					1969 Jun 24 10:30	0°♊	
conjunction	1961 Aug 19 09:22	26°♈08'59	0°41'53				
minimum elong	1961 Aug 19 09:21	26°♈08'59	0°41'52	conjunction	1969 Sep 27 17:02	4°♊24'22	0°41'11
	1961 Nov 01 15:57	0°♈		minimum elong	1969 Sep 27 17:02	4°♊24'22	0°41'10
retrograde	1961 Dec 06 04:27	0°♈32'55		max. Earth dist.	1969 Sep 26 19:53	4°♊21'02	19.31448 AU
	1962 Jan 10 05:57	30°♈♈		retrograde	1970 Jan 13 06:09	8°♊47'33	
opposition	1962 Feb 17 15:31	28°♈29'57	0°47'15	opposition	1970 Mar 27 20:38	6°♊45'30	0°45'11
min. Earth dist.	1962 Feb 18 12:30	28°♈27'39	17.34908 AU	min. Earth dist.	1970 Mar 28 15:21	6°♊43'28	17.32291 AU
direct	1962 May 04 08:57	26°♈23'37		direct	1970 Jun 12 09:40	4°♊39'21	
	1962 Aug 10 01:17	0°♈					
conjunction	1962 Aug 24 13:40	0°♈54'08	0°42'50	conjunction	1970 Oct 02 19:32	9°♊11'12	0°39'46
minimum elong	1962 Aug 24 13:40	0°♈54'08	0°42'50	minimum elong	1970 Oct 02 19:32	9°♊11'12	0°39'46
max. Earth dist.	1962 Aug 23 13:25	0°♈50'21	19.33600 AU	max. Earth dist.	1970 Oct 01 23:05	9°♊07'59	19.33178 AU
retrograde	1962 Dec 11 05:13	5°♈18'14		retrograde	1971 Jan 18 06:54	13°♊33'54	
opposition	1963 Feb 22 14:38	3°♈15'18	0°48'10	opposition	1971 Apr 01 22:10	11°♊31'58	0°43'27
min. Earth dist.	1963 Feb 23 11:37	3°♈13'00	17.32540 AU	min. Earth dist.	1971 Apr 02 15:06	11°♊30'08	17.34242 AU
direct	1963 May 09 10:16	1°♈08'52		direct	1971 Jun 17 14:51	9°♊25'54	
conjunction	1963 Aug 29 17:53	5°♈40'02	0°43'30	conjunction	1971 Oct 07 21:33	13°♊57'15	0°38'04
minimum elong	1963 Aug 29 17:53	5°♈40'02	0°43'30	minimum elong	1971 Oct 07 21:33	13°♊57'15	0°38'04
max. Earth dist.	1963 Aug 28 16:44	5°♈36'06	19.31558 AU	max. Earth dist.	1971 Oct 07 02:40	13°♊54'17	19.35363 AU
retrograde	1963 Dec 16 05:12	10°♈04'15		retrograde	1972 Jan 23 05:26	18°♊19'23	
opposition	1964 Feb 27 14:18	8°♈01'25	0°48'45	opposition	1972 Apr 06 00:00	16°♊17'32	0°41'25
min. Earth dist.	1964 Feb 28 11:08	7°♈59'08	17.30823 AU	min. Earth dist.	1972 Apr 06 16:57	16°♊15'42	17.36661 AU
direct	1964 May 13 11:26	5°♈54'54		direct	1972 Jun 21 17:27	14°♊11'36	
conjunction	1964 Sep 02 22:17	10°♈26'39	0°43'52	conjunction	1972 Oct 11 22:36	18°♊42'15	0°36'07
minimum elong	1964 Sep 02 22:17	10°♈26'39	0°43'51	minimum elong	1972 Oct 11 22:36	18°♊42'15	0°36'08
max. Earth dist.	1964 Sep 01 22:36	10°♈22'55	19.30153 AU	max. Earth dist.	1972 Oct 11 04:23	18°♊39'23	19.38030 AU
retrograde	1964 Dec 20 06:45	14°♈50'53		retrograde	1973 Jan 27 05:30	23°♊03'45	
opposition	1965 Mar 03 14:24	12°♈48'11	0°49'00	opposition	1973 Apr 11 01:32	21°♊01'59	0°39'06
min. Earth dist.	1965 Mar 04 10:46	12°♈45'57	17.29716 AU	min. Earth dist.	1973 Apr 11 16:15	21°♊00'24	17.39564 AU
direct	1965 May 18 14:32	10°♈41'41		direct	1973 Jun 26 22:00	18°♊56'11	
max. Earth dist.	1965 Sep 07 02:21	15°♈10'02	19.29350 AU	conjunction	1973 Oct 16 23:00	23°♊26'02	0°33'56

minimum elong	1973 Oct 16 23:00	23° <del>2</del> 26'02	0°33'56	retrograde	1981 Mar 05 01:47	0° <del>2</del> 06'43	
max. Earth dist.	1973 Oct 16 07:14	23° <del>2</del> 23'33	19.41186 AU		1981 Mar 20 23:18	30° <del>8</del> <del>1</del>	
retrograde	1974 Feb 01 02:57	27° <del>2</del> 46'50		opposition	1981 May 19 04:22	28° <del>1</del> 06'18	0°13'24
opposition	1974 Apr 16 03:02	25° <del>2</del> 45'09	0°36'32	min. Earth dist.	1981 May 19 06:05	28° <del>1</del> 06'07	17.80169 AU
min. Earth dist.	1974 Apr 16 17:17	25° <del>2</del> 43'37	17.42976 AU	direct	1981 Aug 04 10:50	26° <del>1</del> 03'06	
direct	1974 Jul 02 00:16	23° <del>2</del> 39'31			1981 Nov 16 12:04	0° <del>2</del>	
conjunction	1974 Oct 21 22:20	28° <del>2</del> 08'25	0°31'32	conjunction	1981 Nov 22 18:49	0° <del>2</del> 23'18	0°10'24
minimum elong	1974 Oct 21 22:20	28° <del>2</del> 08'25	0°31'32	minimum elong	1981 Nov 22 18:49	0° <del>2</del> 23'18	0°10'23
max. Earth dist.	1974 Oct 21 07:22	28° <del>2</del> 06'04	19.44869 AU	behind sun begin	1981 Nov 22 13:36	0° <del>2</del> 22'31	
	1974 Nov 21 09:31	0° <del>1</del>		behind sun end	1981 Nov 23 00:02	0° <del>2</del> 24'05	
retrograde	1975 Feb 06 01:48	2° <del>1</del> 28'29		max. Earth dist.	1981 Nov 22 18:02	0° <del>2</del> 23'11	19.83435 AU
opposition	1975 Apr 21 04:09	0° <del>1</del> 26'54	0°33'44	retrograde	1982 Mar 09 19:41	4° <del>2</del> 37'32	
min. Earth dist.	1975 Apr 21 15:53	0° <del>1</del> 25'38	17.46917 AU	opposition	1982 May 24 02:48	2° <del>2</del> 37'20	0°09'39
	1975 May 01 17:48	30° <del>8</del> <del>1</del>		min. Earth dist.	1982 May 24 02:48	2° <del>2</del> 37'20	17.86690 AU
direct	1975 Jul 07 03:58	28° <del>2</del> 21'28		direct	1982 Aug 09 10:21	0° <del>2</del> 34'33	
	1975 Sep 08 05:15	0° <del>1</del>		conjunction	1982 Nov 27 11:23	4° <del>2</del> 53'16	0°07'01
conjunction	1975 Oct 26 21:04	2° <del>1</del> 49'21	0°28'56	minimum elong	1982 Nov 27 11:23	4° <del>2</del> 53'16	0°07'02
minimum elong	1975 Oct 26 21:04	2° <del>1</del> 49'21	0°28'56	behind sun begin	1982 Nov 27 05:17	4° <del>2</del> 52'21	
max. Earth dist.	1975 Oct 26 09:02	2° <del>1</del> 47'28	19.49075 AU	behind sun end	1982 Nov 27 17:29	4° <del>2</del> 54'11	
retrograde	1976 Feb 10 22:11	7° <del>1</del> 08'38		max. Earth dist.	1982 Nov 27 11:25	4° <del>2</del> 53'16	19.90007 AU
opposition	1976 Apr 25 05:05	5° <del>1</del> 07'11	0°30'43	retrograde	1983 Mar 14 13:03	9° <del>2</del> 06'37	
min. Earth dist.	1976 Apr 25 15:51	5° <del>1</del> 06'02	17.51383 AU	opposition	1983 May 29 00:47	7° <del>2</del> 06'35	0°05'52
direct	1976 Jul 11 06:05	3° <del>1</del> 02'03		min. Earth dist.	1983 May 28 23:35	7° <del>2</del> 06'43	17.93304 AU
				direct	1983 Aug 14 07:11	5° <del>2</del> 04'12	
conjunction	1976 Oct 30 18:48	7° <del>1</del> 28'48	0°26'09	conjunction	1983 Dec 02 03:10	9° <del>2</del> 21'25	0°03'37
minimum elong	1976 Oct 30 18:48	7° <del>1</del> 28'48	0°26'09	minimum elong	1983 Dec 02 03:09	9° <del>2</del> 21'25	0°03'37
max. Earth dist.	1976 Oct 30 07:38	7° <del>1</del> 27'03	19.53816 AU	behind sun begin	1983 Dec 01 20:38	9° <del>2</del> 20'26	
retrograde	1977 Feb 14 19:50	11° <del>1</del> 47'17		behind sun end	1983 Dec 02 09:39	9° <del>2</del> 22'23	
opposition	1977 Apr 30 05:42	9° <del>1</del> 46'00	0°27'32	max. Earth dist.	1983 Dec 02 05:25	9° <del>2</del> 21'43	19.96639 AU
min. Earth dist.	1977 Apr 30 13:55	9° <del>1</del> 45'08	17.56375 AU	retrograde	1984 Mar 18 06:13	13° <del>2</del> 33'50	
direct	1977 Jul 16 08:41	7° <del>1</del> 41'12		opposition	1984 Jun 01 22:06	11° <del>2</del> 33'58	0°02'04
conjunction	1977 Nov 04 15:41	12° <del>1</del> 06'46	0°23'14	min. Earth dist.	1984 Jun 01 18:54	11° <del>2</del> 34'18	17.99933 AU
minimum elong	1977 Nov 04 15:42	12° <del>1</del> 06'46	0°23'14	direct	1984 Aug 18 05:40	9° <del>2</del> 31'58	
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	1977 Dec 25 01:01	15° <del>1</del>		minimum elong	1984 Dec 05 17:57	13° <del>2</del> 47'38	0°00'09
retrograde	1978 Feb 19 15:25	16° <del>1</del> 24'26		behind sun begin	1984 Dec 05 11:29	13° <del>2</del> 46'40	
	1978 Apr 20 13:52	15° <del>8</del> <del>1</del>		behind sun end	1984 Dec 06 00:25	13° <del>2</del> 48'36	
opposition	1978 May 05 06:01	14° <del>1</del> 23'22	0°24'11	max. Earth dist.	1984 Dec 05 21:15	13° <del>2</del> 48'05	20.03271 AU
min. Earth dist.	1978 May 05 12:57	14° <del>1</del> 22'38	17.61818 AU	desc. node	1984 Dec 21 01:34	14° <del>2</del> 43'32	
direct	1978 Jul 21 10:03	12° <del>1</del> 18'56		retrograde	1985 Mar 22 22:02	17° <del>2</del> 59'09	
	1978 Oct 12 03:49	15° <del>1</del>		opposition	1985 Jun 06 18:50	15° <del>2</del> 59'24	0°-1'-42
conjunction	1978 Nov 09 11:42	16° <del>1</del> 43'15	0°20'10	min. Earth dist.	1985 Jun 06 14:44	15° <del>2</del> 59'50	18.06571 AU
minimum elong	1978 Nov 09 11:42	16° <del>1</del> 43'15	0°20'10	direct	1985 Aug 23 00:19	13° <del>2</del> 57'44	
max. Earth dist.	1978 Nov 09 04:32	16° <del>1</del> 42'08	19.64707 AU	conjunction	1985 Dec 10 07:48	18° <del>2</del> 11'51	0°-3'-18
retrograde	1979 Feb 24 11:58	21° <del>1</del> 00'05		minimum elong	1985 Dec 10 07:47	18° <del>2</del> 11'51	0°03'19
opposition	1979 May 10 05:43	18° <del>1</del> 59'14	0°20'42	behind sun begin	1985 Dec 10 01:16	18° <del>2</del> 10'52	
min. Earth dist.	1979 May 10 10:38	18° <del>1</del> 58'43	17.67659 AU	behind sun end	1985 Dec 10 14:18	18° <del>2</del> 12'49	
direct	1979 Jul 26 10:59	16° <del>1</del> 55'12		max. Earth dist.	1985 Dec 10 13:08	18° <del>2</del> 12'38	20.09900 AU
conjunction	1979 Nov 14 07:03	21° <del>1</del> 18'12	0°16'59	retrograde	1986 Mar 27 14:17	22° <del>2</del> 22'26	
minimum elong	1979 Nov 14 07:03	21° <del>1</del> 18'12	0°16'59	opposition	1986 Jun 11 14:41	20° <del>2</del> 22'47	0°-5'-26
max. Earth dist.	1979 Nov 14 02:46	21° <del>1</del> 17'33	19.70712 AU	min. Earth dist.	1986 Jun 11 08:21	20° <del>2</del> 23'26	18.13175 AU
retrograde	1980 Feb 29 06:40	25° <del>1</del> 34'11		direct	1986 Aug 27 21:15	18° <del>2</del> 21'27	
opposition	1980 May 14 05:16	23° <del>1</del> 33'34	0°17'06	conjunction	1986 Dec 14 20:42	22° <del>2</del> 33'59	0°-6'-38
min. Earth dist.	1980 May 14 08:40	23° <del>1</del> 33'12	17.73794 AU	minimum elong	1986 Dec 14 20:43	22° <del>2</del> 33'59	0°06'40
direct	1980 Jul 30 11:39	21° <del>1</del> 29'58		behind sun begin	1986 Dec 14 14:34	22° <del>2</del> 33'05	
conjunction	1980 Nov 18 01:14	25° <del>1</del> 51'35	0°13'43	behind sun end	1986 Dec 15 02:52	22° <del>2</del> 34'54	
minimum elong	1980 Nov 18 01:14	25° <del>1</del> 51'35	0°13'44	max. Earth dist.	1986 Dec 15 03:21	22° <del>2</del> 34'58	20.16489 AU
behind sun begin	1980 Nov 17 21:38	25° <del>1</del> 51'02		retrograde	1987 Apr 01 04:35	26° <del>2</del> 43'40	
behind sun end	1980 Nov 18 04:51	25° <del>1</del> 52'07		opposition	1987 Jun 16 09:48	24° <del>2</del> 44'05	0°-9'-7
max. Earth dist.	1980 Nov 17 21:51	25° <del>1</del> 51'04	19.76974 AU	min. Earth dist.	1987 Jun 16 02:43	24° <del>2</del> 44'49	18.19766 AU
	1981 Feb 17 09:00	0° <del>2</del>		direct	1987 Sep 01 14:23	22° <del>2</del> 43'04	

conjunction	1987 Dec 19 08:45	26° $\mathring{A}$ 54'03	0°-9'-54	max. Earth dist.	1995 Jan 17 19:16	26° $\mathring{B}$ 27'25	20.67748 AU
minimum elong	1987 Dec 19 08:45	26° $\mathring{A}$ 54'03	0°09'55		1995 Apr 01 12:11	0° $\mathring{A}$	
behind sun begin	1987 Dec 19 03:23	26° $\mathring{A}$ 53'15		retrograde	1995 May 05 07:48	0° $\mathring{A}$ 28'28	
behind sun end	1987 Dec 19 14:06	26° $\mathring{A}$ 54'50			1995 Jun 09 01:42	30° $\mathring{R}$ $\mathring{B}$	
max. Earth dist.	1987 Dec 19 17:21	26° $\mathring{A}$ 55'20	20.23080 AU	opposition	1995 Jul 21 17:40	28° $\mathring{B}$ 29'43	0°-34'-13
	1988 Feb 15 00:11	0° $\mathring{B}$		min. Earth dist.	1995 Jul 20 23:25	28° $\mathring{B}$ 31'33	18.70590 AU
retrograde	1988 Apr 04 19:25	1° $\mathring{B}$ 02'50		direct	1995 Oct 06 12:58	26° $\mathring{B}$ 31'34	
	1988 May 27 01:17	30° $\mathring{R}$ $\mathring{A}$			1996 Jan 12 07:13	0° $\mathring{A}$	
opposition	1988 Jun 20 04:11	29° $\mathring{A}$ 03'20	0°-12'-42				
min. Earth dist.	1988 Jun 19 18:29	29° $\mathring{A}$ 04'19	18.26353 AU	conjunction	1996 Jan 21 07:21	0° $\mathring{A}$ 31'45	0°-32'-2
direct	1988 Sep 05 09:41	27° $\mathring{A}$ 02'38		minimum elong	1996 Jan 21 07:21	0° $\mathring{A}$ 31'45	0°32'04
	1988 Dec 02 15:35	0° $\mathring{B}$		max. Earth dist.	1996 Jan 22 02:44	0° $\mathring{A}$ 34'36	20.73321 AU
				retrograde	1996 May 08 19:35	4° $\mathring{A}$ 35'03	
conjunction	1988 Dec 22 19:47	1° $\mathring{B}$ 12'05	0°-13'-5	min. Earth dist.	1996 Jul 24 10:47	2° $\mathring{A}$ 38'23	18.75977 AU
minimum elong	1988 Dec 22 19:47	1° $\mathring{B}$ 12'05	0°13'07	opposition	1996 Jul 25 06:49	2° $\mathring{A}$ 36'22	0°-36'-38
behind sun begin	1988 Dec 22 15:46	1° $\mathring{B}$ 11'30		direct	1996 Oct 10 00:55	0° $\mathring{A}$ 38'31	
behind sun end	1988 Dec 22 23:47	1° $\mathring{B}$ 12'40					
max. Earth dist.	1988 Dec 23 06:05	1° $\mathring{B}$ 13'37	20.29665 AU	conjunction	1997 Jan 24 13:53	4° $\mathring{A}$ 37'37	0°-34'-8
retrograde	1989 Apr 09 08:54	5° $\mathring{B}$ 20'02		minimum elong	1997 Jan 24 13:53	4° $\mathring{A}$ 37'37	0°34'08
opposition	1989 Jun 24 22:01	3° $\mathring{B}$ 20'36	0°-16'-12	max. Earth dist.	1997 Jan 25 10:21	4° $\mathring{A}$ 40'36	20.78492 AU
min. Earth dist.	1989 Jun 24 11:30	3° $\mathring{B}$ 21'40	18.32955 AU	retrograde	1997 May 13 04:05	8° $\mathring{A}$ 40'25	
direct	1989 Sep 10 01:14	1° $\mathring{B}$ 20'15		opposition	1997 Jul 29 19:29	6° $\mathring{A}$ 41'48	0°-38'-51
				min. Earth dist.	1997 Jul 28 23:56	6° $\mathring{A}$ 43'45	18.80943 AU
conjunction	1989 Dec 27 06:12	5° $\mathring{B}$ 28'13	0°-16'-10	direct	1997 Oct 14 10:48	4° $\mathring{A}$ 44'12	
minimum elong	1989 Dec 27 06:12	5° $\mathring{B}$ 28'12	0°16'11				
behind sun begin	1989 Dec 27 05:29	5° $\mathring{B}$ 28'06		conjunction	1998 Jan 28 20:08	8° $\mathring{A}$ 42'15	0°-36'-3
behind sun end	1989 Dec 27 06:54	5° $\mathring{B}$ 28'19		minimum elong	1998 Jan 28 20:08	8° $\mathring{A}$ 42'15	0°36'04
max. Earth dist.	1989 Dec 27 18:14	5° $\mathring{B}$ 30'00	20.36266 AU	max. Earth dist.	1998 Jan 29 16:39	8° $\mathring{A}$ 45'15	20.83236 AU
retrograde	1990 Apr 13 22:21	9° $\mathring{B}$ 35'21		retrograde	1998 May 17 15:01	12° $\mathring{A}$ 44'36	
opposition	1990 Jun 29 14:43	7° $\mathring{B}$ 36'01	0°-19'-34	min. Earth dist.	1998 Aug 02 10:17	10° $\mathring{A}$ 48'04	18.85458 AU
min. Earth dist.	1990 Jun 29 01:34	7° $\mathring{B}$ 37'21	18.39545 AU	opposition	1998 Aug 03 07:12	10° $\mathring{A}$ 45'59	0°-40'-51
direct	1990 Sep 14 18:29	5° $\mathring{B}$ 36'02		direct	1998 Oct 18 21:24	8° $\mathring{A}$ 48'35	
conjunction	1990 Dec 31 15:51	9° $\mathring{B}$ 42'34	0°-19'-9	conjunction	1999 Feb 02 01:59	12° $\mathring{A}$ 45'41	0°-37'-46
minimum elong	1990 Dec 31 15:51	9° $\mathring{B}$ 42'34	0°19'10	minimum elong	1999 Feb 02 01:58	12° $\mathring{A}$ 45'41	0°37'47
max. Earth dist.	1991 Jan 01 05:31	9° $\mathring{B}$ 44'36	20.42830 AU	max. Earth dist.	1999 Feb 02 23:24	12° $\mathring{A}$ 48'48	20.87513 AU
retrograde	1991 Apr 18 10:33	13° $\mathring{B}$ 48'57			1999 Mar 14 18:28	15° $\mathring{A}$	
opposition	1991 Jul 04 07:04	11° $\mathring{B}$ 49'44	0°-22'-48	retrograde	1999 May 21 22:24	16° $\mathring{A}$ 47'36	
min. Earth dist.	1991 Jul 03 17:23	11° $\mathring{B}$ 51'07	18.46088 AU		1999 Aug 03 03:51	15° $\mathring{R}$ $\mathring{A}$	
direct	1991 Sep 19 08:37	9° $\mathring{B}$ 50'08		opposition	1999 Aug 07 18:38	14° $\mathring{A}$ 48'58	0°-42'-38
				min. Earth dist.	1999 Aug 06 22:17	14° $\mathring{A}$ 51'00	18.89516 AU
conjunction	1992 Jan 05 00:45	13° $\mathring{B}$ 55'17	0°-22'-1	direct	1999 Oct 23 06:12	12° $\mathring{A}$ 51'45	
minimum elong	1992 Jan 05 00:45	13° $\mathring{B}$ 55'17	0°22'02		2000 Jan 05 05:32	15° $\mathring{A}$	
max. Earth dist.	1992 Jan 05 15:50	13° $\mathring{B}$ 57'32	20.49331 AU				
retrograde	1992 Apr 21 23:19	18° $\mathring{B}$ 00'58		conjunction	2000 Feb 06 07:14	16° $\mathring{A}$ 47'55	0°-39'-17
opposition	1992 Jul 07 22:38	16° $\mathring{B}$ 01'52	0°-25'-54	minimum elong	2000 Feb 06 07:14	16° $\mathring{A}$ 47'55	0°39'18
min. Earth dist.	1992 Jul 07 06:26	16° $\mathring{B}$ 03'30	18.52526 AU	max. Earth dist.	2000 Feb 07 04:46	16° $\mathring{A}$ 51'03	20.91362 AU
direct	1992 Sep 22 23:45	14° $\mathring{B}$ 02'39		retrograde	2000 May 25 08:20	20° $\mathring{A}$ 49'28	
				min. Earth dist.	2000 Aug 10 07:36	18° $\mathring{A}$ 52'56	18.93159 AU
conjunction	1993 Jan 08 09:09	18° $\mathring{B}$ 06'28	0°-24'-45	opposition	2000 Aug 11 05:20	18° $\mathring{A}$ 50'46	0°-44'-11
minimum elong	1993 Jan 08 09:09	18° $\mathring{B}$ 06'28	0°24'45	direct	2000 Oct 26 15:24	16° $\mathring{A}$ 53'42	
max. Earth dist.	1993 Jan 09 01:49	18° $\mathring{B}$ 08'57	20.55688 AU				
retrograde	1993 Apr 26 10:03	22° $\mathring{B}$ 11'30		conjunction	2001 Feb 09 12:19	20° $\mathring{A}$ 49'02	0°-40'-36
opposition	1993 Jul 12 13:39	20° $\mathring{B}$ 12'32	0°-28'-51	minimum elong	2001 Feb 09 12:19	20° $\mathring{A}$ 49'02	0°40'38
min. Earth dist.	1993 Jul 11 21:18	20° $\mathring{B}$ 14'10	18.58805 AU	max. Earth dist.	2001 Feb 10 10:55	20° $\mathring{A}$ 52'19	20.94799 AU
direct	1993 Sep 27 12:29	18° $\mathring{B}$ 13'41		retrograde	2001 May 29 15:11	24° $\mathring{A}$ 50'16	
				opposition	2001 Aug 15 15:25	22° $\mathring{A}$ 51'30	0°-45'-32
conjunction	1994 Jan 12 16:59	22° $\mathring{B}$ 16'14	0°-27'-20	min. Earth dist.	2001 Aug 14 18:11	22° $\mathring{A}$ 53'37	18.96420 AU
minimum elong	1994 Jan 12 16:59	22° $\mathring{B}$ 16'14	0°27'22	direct	2001 Oct 30 22:55	20° $\mathring{A}$ 54'34	
max. Earth dist.	1994 Jan 13 10:35	22° $\mathring{B}$ 18'50	20.61860 AU				
retrograde	1994 Apr 30 22:18	26° $\mathring{B}$ 20'38		conjunction	2002 Feb 13 17:06	24° $\mathring{A}$ 49'10	0°-41'-43
min. Earth dist.	1994 Jul 16 09:26	24° $\mathring{B}$ 23'38	18.64849 AU	minimum elong	2002 Feb 13 17:06	24° $\mathring{A}$ 49'10	0°41'43
opposition	1994 Jul 17 03:54	24° $\mathring{B}$ 21'47	0°-31'-37	max. Earth dist.	2002 Feb 14 15:39	24° $\mathring{A}$ 52'25	20.97885 AU
direct	1994 Oct 02 01:47	22° $\mathring{B}$ 23'17		retrograde	2002 Jun 03 00:11	28° $\mathring{A}$ 50'07	
				min. Earth dist.	2002 Aug 19 02:23	26° $\mathring{A}$ 53'34	18.99336 AU
conjunction	1995 Jan 17 00:22	26° $\mathring{B}$ 24'38	0°-29'-46	opposition	2002 Aug 20 00:54	26° $\mathring{A}$ 51'19	0°-46'-38
minimum elong	1995 Jan 17 00:22	26° $\mathring{B}$ 24'38	0°29'47	direct	2002 Nov 04 06:27	24° $\mathring{A}$ 54'30	

conjunction	2003 Feb 17 21:38	28° <del>48</del> '27	0°-42'-37	direct	2010 Dec 06 01:49	26° <del>4</del> '40'19	
minimum elong	2003 Feb 17 21:38	28° <del>48</del> '27	0°42'39		2011 Mar 12 00:50	0° <del>0</del> '	
max. Earth dist.	2003 Feb 18 21:11	28° <del>48</del> '51'51	21.00619 AU				
	2003 Mar 10 20:54	0° <del>0</del> '		conjunction	2011 Mar 21 12:24	0° <del>0</del> '32'25	0°-42'-20
retrograde	2003 Jun 07 06:59	2° <del>0</del> '49'14		minimum elong	2011 Mar 21 12:24	0° <del>0</del> '32'25	0°42'20
min. Earth dist.	2003 Aug 23 11:56	0° <del>0</del> '52'35	19.01909 AU	max. Earth dist.	2011 Mar 22 10:14	0° <del>0</del> '35'32	21.08311 AU
opposition	2003 Aug 24 10:02	0° <del>0</del> '50'23	0°-47'-30	retrograde	2011 Jul 10 00:34	4° <del>0</del> '33'52	
	2003 Sep 15 03:46	30° <del>0</del> ' <del>R</del>		min. Earth dist.	2011 Sep 25 04:59	2° <del>0</del> '36'38	19.07746 AU
direct	2003 Nov 08 12:44	28° <del>48</del> '53'42		opposition	2011 Sep 26 00:15	2° <del>0</del> '34'42	0°-46'-14
	2003 Dec 30 09:15	0° <del>0</del> '		direct	2011 Dec 10 07:04	0° <del>0</del> '38'31	
conjunction	2004 Feb 22 02:07	2° <del>0</del> '47'06	0°-43'-18	conjunction	2012 Mar 24 18:20	4° <del>0</del> '30'43	0°-41'-21
minimum elong	2004 Feb 22 02:07	2° <del>0</del> '47'06	0°43'19	minimum elong	2012 Mar 24 18:20	4° <del>0</del> '30'43	0°41'23
max. Earth dist.	2004 Feb 23 01:28	2° <del>0</del> '50'27	21.03035 AU	max. Earth dist.	2012 Mar 25 14:32	4° <del>0</del> '33'36	21.06973 AU
retrograde	2004 Jun 10 15:47	6° <del>0</del> '47'46		retrograde	2012 Jul 13 09:49	8° <del>0</del> '32'28	
opposition	2004 Aug 27 18:41	4° <del>0</del> '48'53	0°-48'-9	opposition	2012 Sep 29 07:15	6° <del>0</del> '33'08	0°-45'-3
min. Earth dist.	2004 Aug 26 19:30	4° <del>0</del> '51'12	19.04158 AU	min. Earth dist.	2012 Sep 28 12:29	6° <del>0</del> '35'02	19.06129 AU
direct	2004 Nov 11 19:11	2° <del>0</del> '52'19		direct	2012 Dec 13 12:02	4° <del>0</del> '36'50	
conjunction	2005 Feb 25 06:33	6° <del>0</del> '45'16	0°-43'-48	conjunction	2013 Mar 29 00:38	8° <del>0</del> '29'15	0°-40'-11
minimum elong	2005 Feb 25 06:33	6° <del>0</del> '45'16	0°43'49	minimum elong	2013 Mar 29 00:38	8° <del>0</del> '29'15	0°40'12
max. Earth dist.	2005 Feb 26 06:43	6° <del>0</del> '48'44	21.05098 AU	max. Earth dist.	2013 Mar 29 20:30	8° <del>0</del> '32'05	21.05088 AU
retrograde	2005 Jun 14 22:38	10° <del>0</del> '45'53		retrograde	2013 Jul 17 17:20	12° <del>0</del> '31'18	
min. Earth dist.	2005 Aug 31 04:32	8° <del>0</del> '49'14	19.06038 AU	opposition	2013 Oct 03 14:12	10° <del>0</del> '31'49	0°-43'-39
opposition	2005 Sep 01 03:02	8° <del>0</del> '47'00	0°-48'-34	min. Earth dist.	2013 Oct 02 20:50	10° <del>0</del> '33'34	19.03988 AU
direct	2005 Nov 16 00:08	6° <del>0</del> '50'34		direct	2013 Dec 17 17:39	8° <del>0</del> '35'22	
conjunction	2006 Mar 01 11:02	10° <del>0</del> '43'09	0°-44'-4	conjunction	2014 Apr 02 07:09	12° <del>0</del> '28'04	0°-38'-49
minimum elong	2006 Mar 01 11:02	10° <del>0</del> '43'09	0°44'05	minimum elong	2014 Apr 02 07:09	12° <del>0</del> '28'04	0°38'50
max. Earth dist.	2006 Mar 02 10:40	10° <del>0</del> '46'32	21.06796 AU	max. Earth dist.	2014 Apr 03 01:23	12° <del>0</del> '30'40	21.02726 AU
retrograde	2006 Jun 19 07:40	14° <del>0</del> '43'45		retrograde	2014 Jul 22 02:53	16° <del>0</del> '30'30	
min. Earth dist.	2006 Sep 04 11:47	12° <del>0</del> '47'10	19.07537 AU	opposition	2014 Oct 07 20:58	14° <del>0</del> '30'49	0°-42'-2
opposition	2006 Sep 05 10:54	12° <del>0</del> '44'52	0°-48'-45	min. Earth dist.	2014 Oct 07 04:07	14° <del>0</del> '32'31	19.01408 AU
direct	2006 Nov 20 06:09	10° <del>0</del> '48'33		direct	2014 Dec 21 22:45	12° <del>0</del> '34'11	
conjunction	2007 Mar 05 15:39	14° <del>0</del> '40'52	0°-44'-8	conjunction	2015 Apr 06 14:08	16° <del>0</del> '27'17	0°-37'-15
minimum elong	2007 Mar 05 15:39	14° <del>0</del> '40'52	0°44'09	minimum elong	2015 Apr 06 14:08	16° <del>0</del> '27'17	0°37'17
max. Earth dist.	2007 Mar 06 15:50	14° <del>0</del> '44'20	21.08080 AU	max. Earth dist.	2015 Apr 07 08:11	16° <del>0</del> '29'52	20.99938 AU
retrograde	2007 Jun 23 14:43	18° <del>0</del> '41'33		retrograde	2015 Jul 26 10:38	20° <del>0</del> '30'10	
opposition	2007 Sep 09 18:46	16° <del>0</del> '42'39	0°-48'-42	opposition	2015 Oct 12 03:49	18° <del>0</del> '30'18	0°-40'-12
min. Earth dist.	2007 Sep 08 20:34	16° <del>0</del> '44'52	19.08605 AU	min. Earth dist.	2015 Oct 11 12:12	18° <del>0</del> '31'53	18.98428 AU
direct	2007 Nov 24 10:15	14° <del>0</del> '46'27		direct	2015 Dec 26 03:52	16° <del>0</del> '33'30	
conjunction	2008 Mar 08 20:19	18° <del>0</del> '38'34	0°-44'00	conjunction	2016 Apr 09 21:27	20° <del>0</del> '27'05	0°-35'-31
minimum elong	2008 Mar 08 20:19	18° <del>0</del> '38'34	0°44'01	minimum elong	2016 Apr 09 21:27	20° <del>0</del> '27'05	0°35'31
max. Earth dist.	2008 Mar 09 19:41	18° <del>0</del> '41'54	21.08931 AU	max. Earth dist.	2016 Apr 10 13:51	20° <del>0</del> '29'25	20.96794 AU
retrograde	2008 Jun 27 00:01	22° <del>0</del> '39'23		retrograde	2016 Jul 29 21:06	24° <del>0</del> '30'28	
min. Earth dist.	2008 Sep 12 04:02	20° <del>0</del> '42'41	19.09214 AU	opposition	2016 Oct 15 10:43	22° <del>0</del> '30'26	0°-38'-11
opposition	2008 Sep 13 02:21	20° <del>0</del> '40'27	0°-48'-26	min. Earth dist.	2016 Oct 14 19:43	22° <del>0</del> '31'58	18.95110 AU
direct	2008 Nov 27 16:08	18° <del>0</del> '44'19		direct	2016 Dec 29 09:29	20° <del>0</del> '33'26	
conjunction	2009 Mar 13 01:27	22° <del>0</del> '36'21	0°-43'-39	conjunction	2017 Apr 14 05:30	24° <del>0</del> '27'38	0°-33'-35
minimum elong	2009 Mar 13 01:28	22° <del>0</del> '36'21	0°43'39	minimum elong	2017 Apr 14 05:30	24° <del>0</del> '27'38	0°33'37
max. Earth dist.	2009 Mar 14 00:56	22° <del>0</del> '39'42	21.09276 AU	max. Earth dist.	2017 Apr 14 21:38	24° <del>0</del> '29'56	20.93304 AU
retrograde	2009 Jul 01 07:37	26° <del>0</del> '37'20		retrograde	2017 Aug 03 05:31	28° <del>0</del> '31'33	
opposition	2009 Sep 17 09:41	24° <del>0</del> '38'22	0°-47'-56	opposition	2017 Oct 19 17:35	26° <del>0</del> '31'23	0°-35'-58
min. Earth dist.	2009 Sep 16 12:44	24° <del>0</del> '40'28	19.09293 AU	min. Earth dist.	2017 Oct 19 03:52	26° <del>0</del> '32'48	18.91460 AU
direct	2009 Dec 01 20:27	22° <del>0</del> '42'16		direct	2018 Jan 02 14:11	24° <del>0</del> '34'13	
conjunction	2010 Mar 17 06:50	26° <del>0</del> '34'18	0°-43'-6	conjunction	2018 Apr 18 14:00	28° <del>0</del> '29'06	0°-31'-30
minimum elong	2010 Mar 17 06:50	26° <del>0</del> '34'18	0°43'07	minimum elong	2018 Apr 18 14:00	28° <del>0</del> '29'06	0°31'30
max. Earth dist.	2010 Mar 18 04:53	26° <del>0</del> '37'27	21.09088 AU	max. Earth dist.	2018 Apr 19 04:16	28° <del>0</del> '31'08	20.89517 AU
	2010 May 28 01:46	0° <del>0</del> '			2018 May 15 15:18	0° <del>0</del> '	
retrograde	2010 Jul 05 16:48	0° <del>0</del> '35'30		retrograde	2018 Aug 07 16:50	2° <del>0</del> ' <del>8</del> '33'39	
	2010 Aug 14 03:34	30° <del>0</del> ' <del>R</del>		min. Earth dist.	2018 Oct 23 11:51	0° <del>0</del> ' <del>8</del> '34'41	18.87521 AU
opposition	2010 Sep 21 16:58	28° <del>0</del> '36'27	0°-47'-12	opposition	2018 Oct 24 00:47	0° <del>0</del> ' <del>8</del> '33'21	0°-33'-35
min. Earth dist.	2010 Sep 20 20:18	28° <del>0</del> '38'31	19.08817 AU		2018 Nov 06 18:57	30° <del>0</del> ' <del>R</del>	

direct	2019 Jan 06 20:27	28°  36'00		conjunction	2026 May 22 14:26	1°  30'59	0°-9'-40
	2019 Mar 06 08:28	0° 		minimum elong	2026 May 22 14:26	1°  30'59	0°09'41
				behind sun begin	2026 May 22 08:56	1°  30'12	
conjunction	2019 Apr 22 23:07	2°  31'41	0°-29'-15	behind sun end	2026 May 22 19:56	1°  31'46	
minimum elong	2019 Apr 22 23:07	2°  33'41	0°29'16	max. Earth dist.	2026 May 22 14:55	1°  31'03	20.47725 AU
max. Earth dist.	2019 Apr 23 13:07	2°  33'41	20.85429 AU	retrograde	2026 Sep 10 18:27	5°  41'49	
retrograde	2019 Aug 12 02:27	6°  36'55		opposition	2026 Nov 25 22:41	3°  40'31	0°-8'-52
opposition	2019 Oct 28 08:15	4°  36'31	0°-31'00	min. Earth dist.	2026 Nov 25 22:27	3°  40'33	18.44411 AU
min. Earth dist.	2019 Oct 27 20:37	4°  37'43	18.83282 AU	direct	2027 Feb 08 12:29	1°  40'57	
direct	2020 Jan 11 01:48	2°  38'59					
				conjunction	2027 May 27 06:12	5°  45'41	0°-6'-28
conjunction	2020 Apr 26 09:01	6°  35'32	0°-26'-51	minimum elong	2027 May 27 06:12	5°  45'41	0°06'29
minimum elong	2020 Apr 26 09:01	6°  35'32	0°26'52	behind sun begin	2027 May 26 23:52	5°  44'47	
max. Earth dist.	2020 Apr 26 20:53	6°  37'14	20.81059 AU	behind sun end	2027 May 27 12:31	5°  46'35	
retrograde	2020 Aug 15 14:26	10°  41'31		max. Earth dist.	2027 May 27 05:58	5°  45'39	20.41088 AU
opposition	2020 Oct 31 15:53	8°  41'02	0°-28'-16	retrograde	2027 Sep 15 09:09	9°  57'20	
min. Earth dist.	2020 Oct 31 05:28	8°  42'06	18.78760 AU	opposition	2027 Nov 30 09:22	7°  55'51	0°-5'-17
direct	2021 Jan 14 08:36	6°  43'18		min. Earth dist.	2027 Nov 30 10:22	7°  55'45	18.37680 AU
				direct	2028 Feb 12 23:49	5°  55'52	
conjunction	2021 Apr 30 19:54	10°  40'51	0°-24'-17				
minimum elong	2021 Apr 30 19:54	10°  40'51	0°24'19	conjunction	2028 May 30 22:46	10°  40'57	0°-3'-13
max. Earth dist.	2021 May 01 07:09	10°  42'28	20.76377 AU	minimum elong	2028 May 30 22:47	10°  40'57	0°03'13
retrograde	2021 Aug 20 01:40	14°  47'35		behind sun begin	2028 May 30 16:04	10°  40'59	
opposition	2021 Nov 04 23:58	12°  47'01	0°-25'-22	behind sun end	2028 May 31 05:30	10°  40'54	
min. Earth dist.	2021 Nov 04 15:06	12°  47'56	18.73907 AU	max. Earth dist.	2028 May 30 19:33	10°  40'31	20.34297 AU
direct	2022 Jan 18 15:26	10°  49'06		retrograde	2028 Sep 19 00:01	14°  42'27	
				opposition	2028 Dec 03 20:28	12°  42'46	0°-1'-38
conjunction	2022 May 05 07:22	14°  47'42	0°-21'-36	min. Earth dist.	2028 Dec 03 23:28	12°  42'27	18.30843 AU
minimum elong	2022 May 05 07:21	14°  47'42	0°21'37	direct	2029 Feb 16 10:51	10°  42'20	
max. Earth dist.	2022 May 05 15:59	14°  48'56	20.71364 AU	asc. node	2029 May 19 19:38	13°  42'40	
	2022 May 08 20:28	15°  48'56					
retrograde	2022 Aug 24 13:53	18°  55'15		conjunction	2029 Jun 04 16:23	14°  42'46	0°00'09
opposition	2022 Nov 09 08:26	16°  54'35	0°-22'-19	minimum elong	2029 Jun 04 16:23	14°  42'46	0°00'09
min. Earth dist.	2022 Nov 09 01:10	16°  55'20	18.68717 AU	behind sun begin	2029 Jun 04 09:45	14°  42'46	
	2023 Jan 11 06:50	15°  48'56		behind sun end	2029 Jun 04 23:01	14°  42'46	
direct	2023 Jan 22 22:58	14°  56'26		max. Earth dist.	2029 Jun 04 12:33	14°  42'46	20.27419 AU
	2023 Feb 03 14:10	15°  48'56		retrograde	2029 Sep 23 16:21	18°  42'46	
				opposition	2029 Dec 08 08:11	16°  42'46	0°02'01
conjunction	2023 May 09 19:56	18°  56'10	0°-18'-46	min. Earth dist.	2029 Dec 08 12:06	16°  42'46	18.23945 AU
minimum elong	2023 May 09 19:56	18°  56'10	0°18'47	direct	2030 Feb 20 23:22	14°  42'46	
max. Earth dist.	2023 May 10 03:39	18°  57'16	20.65987 AU				
retrograde	2023 Aug 29 02:38	23°  04'31		conjunction	2030 Jun 09 10:27	18°  42'46	0°03'32
opposition	2023 Nov 13 17:20	21°  03'45	0°-19'-7	minimum elong	2030 Jun 09 10:27	18°  42'46	0°03'33
min. Earth dist.	2023 Nov 13 11:44	21°  04'20	18.63149 AU	behind sun begin	2030 Jun 09 03:44	18°  42'46	
direct	2024 Jan 27 07:35	19°  05'18		behind sun end	2030 Jun 09 17:10	18°  42'46	
				max. Earth dist.	2030 Jun 09 03:50	18°  42'46	20.20524 AU
conjunction	2024 May 13 09:13	23°  06'13	0°-15'-50	retrograde	2030 Sep 28 08:26	22°  42'46	
minimum elong	2024 May 13 09:13	23°  06'13	0°15'51	opposition	2030 Dec 12 20:35	20°  42'46	0°05'42
max. Earth dist.	2024 May 13 13:50	23°  06'52	20.60242 AU	min. Earth dist.	2030 Dec 13 02:25	20°  42'46	18.17072 AU
retrograde	2024 Sep 01 15:17	27°  15'24		direct	2031 Feb 25 11:24	18°  42'46	
opposition	2024 Nov 17 02:45	25°  14'29	0°-15'-48				
min. Earth dist.	2024 Nov 16 23:02	25°  14'52	18.57218 AU	conjunction	2031 Jun 14 05:44	23°  42'46	0°06'50
direct	2025 Jan 30 16:22	23°  15'41		minimum elong	2031 Jun 14 05:43	23°  42'46	0°06'50
				behind sun begin	2031 Jun 13 23:26	22°  42'46	
conjunction	2025 May 17 23:32	27°  17'50	0°-12'-47	behind sun end	2031 Jun 14 12:00	23°  42'46	
minimum elong	2025 May 17 23:32	27°  17'50	0°12'48	max. Earth dist.	2031 Jun 13 22:38	22°  42'46	20.13674 AU
behind sun begin	2025 May 17 19:26	27°  17'15		retrograde	2031 Oct 03 02:42	27°  42'46	
behind sun end	2025 May 18 03:38	27°  18'25		opposition	2031 Dec 17 09:27	25°  42'46	0°09'23
max. Earth dist.	2025 May 18 03:06	27°  18'20	20.54132 AU	min. Earth dist.	2031 Dec 17 15:57	25°  42'46	18.10262 AU
	2025 Jul 07 07:47	0°  12'48		direct	2032 Mar 01 01:34	23°  42'46	
retrograde	2025 Sep 06 04:51	1°  12'49					
	2025 Nov 08 02:19	30°  26'44		conjunction	2032 Jun 18 01:46	27°  42'46	0°10'07
opposition	2025 Nov 21 12:25	29°  26'44	0°-12'-23	minimum elong	2032 Jun 18 01:45	27°  42'46	0°10'07
min. Earth dist.	2025 Nov 21 10:16	29°  26'58	18.50940 AU	behind sun begin	2032 Jun 17 20:23	27°  42'46	
direct	2026 Feb 04 02:33	27°  27'35		behind sun end	2032 Jun 18 07:07	27°  42'46	
	2026 Apr 26 00:51	0°  12'48		max. Earth dist.	2032 Jun 17 15:55	27°  42'46	20.06915 AU
					2032 Aug 03 18:22	0°  12'48	

retrograde	2032 Oct 06 19:52	1°♄40'01		max. Earth dist.	2040 Jul 25 03:52	3°♄38'55	19.57664 AU
	2032 Dec 12 06:19	30°♄					
opposition	2032 Dec 20 23:11	29°♄37'44	0°13'02	conjunction	2040 Jul 26 01:48	3°♄42'17	0°33'28
min. Earth dist.	2032 Dec 21 07:44	29°♄36'49	18.03566 AU	minimum elong	2040 Jul 26 01:48	3°♄42'17	0°33'29
direct	2033 Mar 05 14:41	27°♄35'40		retrograde	2040 Nov 12 17:53	8°♄04'26	
	2033 May 22 13:16	0°♄		opposition	2041 Jan 25 15:27	6°♄01'41	0°38'31
				min. Earth dist.	2041 Jan 26 10:43	5°♄59'34	17.55025 AU
conjunction	2033 Jun 22 22:48	1°♄49'15	0°13'23	direct	2041 Apr 10 19:05	3°♄56'49	
minimum elong	2033 Jun 22 22:48	1°♄49'15	0°13'23	max. Earth dist.	2041 Jul 30 05:24	8°♄18'48	19.52441 AU
behind sun begin	2033 Jun 22 19:06	1°♄48'43					
behind sun end	2033 Jun 23 02:30	1°♄49'48		conjunction	2041 Jul 31 04:40	8°♄22'23	0°35'41
max. Earth dist.	2033 Jun 22 12:27	1°♄47'43	20.00279 AU	minimum elong	2041 Jul 31 04:40	8°♄22'23	0°35'40
retrograde	2033 Oct 11 16:04	6°♄06'08		retrograde	2041 Nov 17 17:16	12°♄45'04	
opposition	2033 Dec 25 13:28	4°♄03'47	0°16'38	opposition	2042 Jan 30 11:35	10°♄42'13	0°40'52
min. Earth dist.	2033 Dec 25 22:35	4°♄02'48	17.96995 AU	min. Earth dist.	2042 Jan 31 06:44	10°♄40'08	17.49993 AU
direct	2034 Mar 10 06:48	2°♄01'23		direct	2042 Apr 15 18:57	8°♄37'00	
				max. Earth dist.	2042 Aug 04 08:38	13°♄00'09	19.47605 AU
conjunction	2034 Jun 27 20:38	6°♄16'34	0°16'35				
minimum elong	2034 Jun 27 20:38	6°♄16'34	0°16'34	conjunction	2042 Aug 05 08:06	13°♄03'46	0°37'39
max. Earth dist.	2034 Jun 27 07:44	6°♄14'39	19.93777 AU	minimum elong	2042 Aug 05 08:05	13°♄03'46	0°37'40
retrograde	2034 Oct 16 10:16	10°♄34'20			2042 Sep 06 15:38	15°♄	
opposition	2034 Dec 30 04:38	8°♄31'57	0°20'10	retrograde	2042 Nov 22 15:15	17°♄26'54	
min. Earth dist.	2034 Dec 30 16:00	8°♄30'43	17.90572 AU	opposition	2043 Feb 04 08:26	15°♄24'00	0°42'57
direct	2035 Mar 14 21:30	6°♄29'12		min. Earth dist.	2043 Feb 05 05:00	15°♄21'44	17.45392 AU
					2043 Feb 13 12:35	15°♄	
conjunction	2035 Jul 02 19:30	10°♄46'01	0°19'43	direct	2043 Apr 20 17:48	13°♄18'27	
minimum elong	2035 Jul 02 19:30	10°♄46'01	0°19'43		2043 Jun 23 10:17	15°♄	
max. Earth dist.	2035 Jul 02 05:48	10°♄43'57	19.87416 AU	max. Earth dist.	2043 Aug 09 10:57	17°♄42'29	19.43248 AU
retrograde	2035 Oct 21 08:02	15°♄04'38					
opposition	2036 Jan 03 20:30	13°♄02'13	0°23'36	conjunction	2043 Aug 10 11:44	17°♄46'20	0°39'23
min. Earth dist.	2036 Jan 04 08:27	13°♄00'55	17.84265 AU	minimum elong	2043 Aug 10 11:44	17°♄46'19	0°39'24
direct	2036 Mar 18 15:29	10°♄59'09		retrograde	2043 Nov 27 15:38	22°♄09'50	
				opposition	2044 Feb 09 05:50	20°♄06'53	0°44'45
conjunction	2036 Jul 06 19:19	15°♄17'33	0°22'45	min. Earth dist.	2044 Feb 10 02:05	20°♄04'40	17.41295 AU
minimum elong	2036 Jul 06 19:19	15°♄17'33	0°22'45	direct	2044 Apr 24 18:50	18°♄01'02	
max. Earth dist.	2036 Jul 06 03:06	15°♄15'06	19.81156 AU				
retrograde	2036 Oct 25 03:23	19°♄37'00		conjunction	2044 Aug 14 15:48	22°♄29'56	0°40'51
opposition	2037 Jan 07 13:14	17°♄34'32	0°26'56	minimum elong	2044 Aug 14 15:48	22°♄29'56	0°40'51
min. Earth dist.	2037 Jan 08 03:39	17°♄32'59	17.78074 AU	max. Earth dist.	2044 Aug 13 15:38	22°♄26'10	19.39409 AU
direct	2037 Mar 23 08:26	15°♄31'07		retrograde	2044 Dec 01 14:46	26°♄53'44	
				opposition	2045 Feb 13 03:56	24°♄50'47	0°46'14
conjunction	2037 Jul 11 19:59	19°♄51'05	0°25'40	min. Earth dist.	2045 Feb 14 00:58	24°♄48'28	17.37747 AU
minimum elong	2037 Jul 11 19:59	19°♄51'05	0°25'40	direct	2045 Apr 29 18:20	22°♄44'42	
max. Earth dist.	2037 Jul 11 02:33	19°♄48'26	19.75023 AU				
retrograde	2037 Oct 30 01:59	24°♄11'18		conjunction	2045 Aug 19 19:53	27°♄14'29	0°42'03
opposition	2038 Jan 12 06:42	22°♄08'47	0°30'06	minimum elong	2045 Aug 19 19:53	27°♄14'29	0°42'03
min. Earth dist.	2038 Jan 12 21:30	22°♄07'11	17.72006 AU	max. Earth dist.	2045 Aug 18 18:35	27°♄10'33	19.36165 AU
direct	2038 Mar 28 04:26	20°♄05'01			2045 Oct 06 07:13	0°♄	
				retrograde	2045 Dec 06 16:02	1°♄38'33	
conjunction	2038 Jul 16 21:10	24°♄26'29	0°28'27		2046 Feb 08 18:48	30°♄	
minimum elong	2038 Jul 16 21:10	24°♄26'29	0°28'27	opposition	2046 Feb 18 02:35	29°♄35'36	0°47'25
max. Earth dist.	2038 Jul 16 01:47	24°♄23'32	19.69021 AU	min. Earth dist.	2046 Feb 18 23:07	29°♄33'21	17.34820 AU
retrograde	2038 Nov 03 22:01	28°♄47'25		direct	2046 May 04 19:51	27°♄29'21	
opposition	2039 Jan 17 01:03	26°♄44'49	0°33'07		2046 Jul 22 22:32	0°♄	
min. Earth dist.	2039 Jan 17 18:07	26°♄42'58	17.66103 AU	max. Earth dist.	2046 Aug 24 00:10	1°♄56'11	19.33543 AU
direct	2039 Apr 01 23:32	24°♄40'41					
				conjunction	2046 Aug 25 00:11	1°♄59'56	0°42'58
conjunction	2039 Jul 21 23:10	29°♄03'35	0°31'03	minimum elong	2046 Aug 25 00:11	1°♄59'56	0°42'57
minimum elong	2039 Jul 21 23:10	29°♄03'35	0°31'02	retrograde	2046 Dec 11 16:09	6°♄24'11	
max. Earth dist.	2039 Jul 21 02:25	29°♄00'25	19.63222 AU	opposition	2047 Feb 23 01:50	4°♄21'19	0°48'17
	2039 Aug 06 10:02	0°♄		min. Earth dist.	2047 Feb 23 22:37	4°♄19'02	17.32504 AU
retrograde	2039 Nov 08 21:04	3°♄25'10		direct	2047 May 09 20:09	2°♄14'57	
opposition	2040 Jan 21 19:46	1°♄22'30	0°35'56	max. Earth dist.	2047 Aug 29 03:32	6°♄42'18	19.31540 AU
min. Earth dist.	2040 Jan 22 13:04	1°♄20'37	17.60421 AU				
	2040 Feb 25 07:34	30°♄		conjunction	2047 Aug 30 04:34	6°♄46'13	0°43'35
direct	2040 Apr 05 21:44	29°♄17'59		minimum elong	2047 Aug 30 04:34	6°♄46'13	0°43'35
	2040 May 15 22:16	0°♄		retrograde	2047 Dec 16 17:21	11°♄10'35	

opposition	2048 Feb 28 01:26	9° <del>17</del> 07'48	0°48'49	opposition	2056 Apr 06 11:36	17° <del>15</del> 24'17	0°41'03
min. Earth dist.	2048 Feb 28 22:05	9° <del>17</del> 05'32	17.30807 AU	min. Earth dist.	2056 Apr 07 04:39	17° <del>15</del> 22'26	17.35767 AU
direct	2048 May 13 22:36	7° <del>17</del> 01'23		direct	2056 Jun 22 05:32	15° <del>15</del> 18'13	
max. Earth dist.	2048 Sep 02 09:31	11° <del>17</del> 29'30	19.30131 AU				
conjunction	2048 Sep 03 09:09	11° <del>17</del> 33'13	0°43'54	conjunction	2056 Oct 12 10:03	19° <del>15</del> 48'54	0°35'47
minimum elong	2048 Sep 03 09:09	11° <del>17</del> 33'13	0°43'54	minimum elong	2056 Oct 12 10:03	19° <del>15</del> 48'54	0°35'47
retrograde	2048 Dec 20 17:42	15° <del>17</del> 57'35		max. Earth dist.	2056 Oct 11 15:53	19° <del>15</del> 46'02	19.37122 AU
opposition	2049 Mar 04 01:45	13° <del>17</del> 54'56	0°49'01	retrograde	2057 Jan 27 16:29	24° <del>15</del> 10'28	
min. Earth dist.	2049 Mar 04 22:12	13° <del>17</del> 52'42	17.29672 AU	opposition	2057 Apr 11 13:09	22° <del>15</del> 08'34	0°38'42
direct	2049 May 19 00:46	11° <del>17</del> 48'31		min. Earth dist.	2057 Apr 12 03:48	22° <del>15</del> 06'59	17.38652 AU
				direct	2057 Jun 27 10:04	20° <del>15</del> 02'39	
conjunction	2049 Sep 08 13:21	16° <del>17</del> 20'44	0°43'56	conjunction	2057 Oct 17 10:19	24° <del>15</del> 32'33	0°33'33
minimum elong	2049 Sep 08 13:21	16° <del>17</del> 20'44	0°43'55	minimum elong	2057 Oct 17 10:19	24° <del>15</del> 32'33	0°33'33
max. Earth dist.	2049 Sep 07 13:03	16° <del>17</del> 16'54	19.29270 AU	max. Earth dist.	2057 Oct 16 18:36	24° <del>15</del> 30'05	19.40285 AU
retrograde	2049 Dec 25 18:11	20° <del>17</del> 45'04		retrograde	2058 Feb 01 14:06	28° <del>15</del> 53'26	
opposition	2050 Mar 09 02:29	18° <del>17</del> 42'31	0°48'53	opposition	2058 Apr 16 14:39	26° <del>15</del> 51'39	0°36'05
min. Earth dist.	2050 Mar 09 22:59	18° <del>17</del> 40'17	17.29085 AU	min. Earth dist.	2058 Apr 17 04:47	26° <del>15</del> 50'08	17.42098 AU
direct	2050 May 24 04:12	16° <del>17</del> 36'05		direct	2058 Jul 02 12:05	24° <del>15</del> 45'56	
conjunction	2050 Sep 13 17:40	21° <del>17</del> 08'34	0°43'39	conjunction	2058 Oct 22 09:47	29° <del>15</del> 14'56	0°31'07
minimum elong	2050 Sep 13 17:40	21° <del>17</del> 08'34	0°43'39	minimum elong	2058 Oct 22 09:47	29° <del>15</del> 14'56	0°31'07
max. Earth dist.	2050 Sep 12 18:37	21° <del>17</del> 04'56	19.28935 AU	max. Earth dist.	2058 Oct 21 19:01	29° <del>15</del> 12'37	19.44025 AU
retrograde	2050 Dec 30 18:43	25° <del>17</del> 32'45			2058 Nov 03 09:26	0° <del>15</del> 00'00	
opposition	2051 Mar 14 03:28	23° <del>17</del> 30'19	0°48'24	retrograde	2059 Feb 06 13:03	3° <del>15</del> 35'06	
min. Earth dist.	2051 Mar 14 23:17	23° <del>17</del> 28'09	17.28989 AU	opposition	2059 Apr 21 15:37	1° <del>15</del> 33'28	0°33'15
direct	2051 May 29 08:24	21° <del>17</del> 23'55		min. Earth dist.	2059 Apr 22 03:09	1° <del>15</del> 32'14	17.46115 AU
conjunction	2051 Sep 18 21:42	25° <del>17</del> 56'28	0°43'03		2059 Jun 01 19:13	30° <del>15</del> 00'00	
minimum elong	2051 Sep 18 21:42	25° <del>17</del> 56'28	0°43'03	direct	2059 Jul 07 15:18	29° <del>15</del> 28'00	
max. Earth dist.	2051 Sep 17 22:23	25° <del>17</del> 52'47	19.29082 AU		2059 Aug 11 18:49	0° <del>15</del> 00'00	
	2051 Dec 08 20:47	0° <del>15</del> 00'00		conjunction	2059 Oct 27 08:37	3° <del>15</del> 56'01	0°28'29
retrograde	2052 Jan 04 18:24	0° <del>15</del> 20'25		minimum elong	2059 Oct 27 08:37	3° <del>15</del> 56'01	0°28'28
	2052 Feb 01 03:01	30° <del>15</del> 00'00		max. Earth dist.	2059 Oct 26 20:45	3° <del>15</del> 54'10	19.48323 AU
opposition	2052 Mar 18 04:55	28° <del>15</del> 18'05	0°47'35	retrograde	2060 Feb 11 10:13	8° <del>15</del> 15'27	
min. Earth dist.	2052 Mar 19 00:58	28° <del>15</del> 15'54	17.29382 AU	opposition	2060 Apr 25 16:40	6° <del>15</del> 13'59	0°30'12
direct	2052 Jun 02 12:15	26° <del>15</del> 11'42		min. Earth dist.	2060 Apr 26 03:21	6° <del>15</del> 12'51	17.50676 AU
	2052 Sep 11 08:09	0° <del>15</del> 00'00		direct	2060 Jul 11 16:54	4° <del>15</del> 08'51	
max. Earth dist.	2052 Sep 22 03:06	0° <del>15</del> 40'41	19.29713 AU				
conjunction	2052 Sep 23 01:19	0° <del>15</del> 44'12	0°42'10	conjunction	2060 Oct 31 06:19	8° <del>15</del> 35'46	0°25'41
minimum elong	2052 Sep 23 01:19	0° <del>15</del> 44'12	0°42'10	minimum elong	2060 Oct 31 06:19	8° <del>15</del> 35'46	0°25'41
retrograde	2053 Jan 08 19:06	5° <del>15</del> 07'49		max. Earth dist.	2060 Oct 30 19:22	8° <del>15</del> 34'04	19.53154 AU
opposition	2053 Mar 23 06:31	3° <del>15</del> 05'35	0°46'25	retrograde	2061 Feb 15 08:01	12° <del>15</del> 54'26	
min. Earth dist.	2053 Mar 24 01:15	3° <del>15</del> 03'33	17.30239 AU	opposition	2061 Apr 30 17:18	10° <del>15</del> 53'11	0°26'59
direct	2053 Jun 07 17:36	0° <del>15</del> 59'16		min. Earth dist.	2061 May 01 01:24	10° <del>15</del> 52'19	17.55744 AU
max. Earth dist.	2053 Sep 27 06:53	5° <del>15</del> 28'07	19.30813 AU	direct	2061 Jul 16 19:11	8° <del>15</del> 48'24	
conjunction	2053 Sep 28 04:29	5° <del>15</del> 31'31	0°40'59	conjunction	2061 Nov 05 03:26	13° <del>15</del> 00'00	0°22'43
minimum elong	2053 Sep 28 04:29	5° <del>15</del> 31'31	0°40'59	minimum elong	2061 Nov 05 03:26	13° <del>15</del> 00'00	0°22'43
retrograde	2054 Jan 13 17:59	9° <del>15</del> 54'45		max. Earth dist.	2061 Nov 04 19:33	13° <del>15</del> 12'57	19.58447 AU
opposition	2054 Mar 28 08:15	7° <del>15</del> 52'36	0°44'56		2061 Dec 04 02:43	15° <del>15</del> 00'00	
min. Earth dist.	2054 Mar 29 03:09	7° <del>15</del> 50'33	17.31589 AU	retrograde	2062 Feb 20 04:16	17° <del>15</del> 32'02	
direct	2054 Jun 12 21:06	5° <del>15</del> 46'20		opposition	2062 May 05 17:34	15° <del>15</del> 31'00	0°23'36
max. Earth dist.	2054 Oct 02 10:21	10° <del>15</del> 14'58	19.32415 AU	min. Earth dist.	2062 May 06 00:40	15° <del>15</del> 30'15	17.61231 AU
					2062 May 18 01:50	15° <del>15</del> 00'00	
conjunction	2054 Oct 03 07:00	10° <del>15</del> 18'13	0°39'31	direct	2062 Jul 21 20:54	13° <del>15</del> 26'37	
minimum elong	2054 Oct 03 07:00	10° <del>15</del> 18'13	0°39'30		2062 Sep 21 06:56	15° <del>15</del> 00'00	
retrograde	2055 Jan 18 18:30	14° <del>15</del> 40'58		conjunction	2062 Nov 09 23:34	17° <del>15</del> 51'08	0°19'38
opposition	2055 Apr 02 09:54	12° <del>15</del> 38'54	0°43'09	minimum elong	2062 Nov 09 23:34	17° <del>15</del> 51'08	0°19'38
min. Earth dist.	2055 Apr 03 02:59	12° <del>15</del> 37'03	17.33422 AU	max. Earth dist.	2062 Nov 09 16:23	17° <del>15</del> 50'01	19.64125 AU
direct	2055 Jun 18 02:39	10° <del>15</del> 32'43		retrograde	2063 Feb 25 00:10	22° <del>15</del> 08'10	
conjunction	2055 Oct 08 08:58	15° <del>15</del> 04'05	0°37'46	opposition	2063 May 10 17:30	20° <del>15</del> 07'21	0°20'05
minimum elong	2055 Oct 08 08:58	15° <del>15</del> 04'05	0°37'47	min. Earth dist.	2063 May 10 22:26	20° <del>15</del> 06'49	17.67071 AU
max. Earth dist.	2055 Oct 07 13:49	15° <del>15</del> 01'04	19.34500 AU	direct	2063 Jul 26 22:06	18° <del>15</del> 03'21	
retrograde	2056 Jan 23 16:28	19° <del>15</del> 26'15		conjunction	2063 Nov 14 18:58	22° <del>15</del> 26'34	0°16'26

minimum elong	2063 Nov 14 18:58	22° <del>ℓ</del> 26'34	0°16'26	opposition	2070 Jun 12 02:27	21° <del>♊</del> 31'37	0°-6'-6
max. Earth dist.	2063 Nov 14 14:41	22° <del>ℓ</del> 25'54	19.70105 AU	min. Earth dist.	2070 Jun 11 20:08	21° <del>♊</del> 32'16	18.12198 AU
retrograde	2064 Feb 29 19:27	26° <del>ℓ</del> 42'43		direct	2070 Aug 28 09:38	19° <del>♊</del> 30'07	
opposition	2064 May 14 17:07	24° <del>ℓ</del> 42'07	0°16'28				
min. Earth dist.	2064 May 14 20:46	24° <del>ℓ</del> 41'44	17.73166 AU	conjunction	2070 Dec 15 08:57	23° <del>♊</del> 42'41	0°-7'-14
direct	2064 Jul 30 23:15	22° <del>ℓ</del> 38'32		minimum elong	2070 Dec 15 08:57	23° <del>♊</del> 42'41	0°07'14
				behind sun begin	2070 Dec 15 02:54	23° <del>♊</del> 41'47	
conjunction	2064 Nov 18 13:23	27° <del>ℓ</del> 00'20	0°13'09	behind sun end	2070 Dec 15 14:59	23° <del>♊</del> 43'35	
minimum elong	2064 Nov 18 13:23	27° <del>ℓ</del> 00'21	0°13'09	max. Earth dist.	2070 Dec 15 15:36	23° <del>♊</del> 43'40	20.15553 AU
behind sun begin	2064 Nov 18 09:24	26° <del>ℓ</del> 59'44		retrograde	2071 Apr 01 16:04	27° <del>♊</del> 52'22	
behind sun end	2064 Nov 18 17:22	27° <del>ℓ</del> 00'57		opposition	2071 Jun 16 21:41	25° <del>♊</del> 52'38	0°-9'-46
max. Earth dist.	2064 Nov 18 09:47	26° <del>ℓ</del> 59'48	19.76315 AU	min. Earth dist.	2071 Jun 16 14:17	25° <del>♊</del> 53'24	18.18889 AU
	2065 Jan 10 19:54	0° <del>♊</del>		direct	2071 Sep 02 03:16	23° <del>♊</del> 51'29	
retrograde	2065 Mar 05 13:49	1° <del>♊</del> 15'38					
	2065 May 01 08:58	30° <del>♋</del>		conjunction	2071 Dec 19 20:54	28° <del>♊</del> 02'29	0°-10'-29
opposition	2065 May 19 16:13	29° <del>ℓ</del> 15'12	0°12'45	minimum elong	2071 Dec 19 20:54	28° <del>♊</del> 02'29	0°10'30
min. Earth dist.	2065 May 19 18:05	29° <del>ℓ</del> 15'01	17.79477 AU	behind sun begin	2071 Dec 19 15:44	28° <del>♊</del> 01'43	
direct	2065 Aug 04 22:38	27° <del>ℓ</del> 12'00		behind sun end	2071 Dec 20 02:04	28° <del>♊</del> 03'15	
	2065 Oct 28 21:03	0° <del>♊</del>		max. Earth dist.	2071 Dec 20 05:51	28° <del>♊</del> 03'50	20.22273 AU
					2072 Jan 22 11:28	0° <del>♋</del>	
conjunction	2065 Nov 23 07:00	1° <del>♊</del> 32'22	0°09'48	retrograde	2072 Apr 05 07:15	2° <del>♋</del> 11'17	
minimum elong	2065 Nov 23 07:00	1° <del>♊</del> 32'22	0°09'48	opposition	2072 Jun 20 16:06	0° <del>♋</del> 11'40	0°-13'-21
behind sun begin	2065 Nov 23 01:35	1° <del>♊</del> 31'33		min. Earth dist.	2072 Jun 20 06:04	0° <del>♋</del> 12'41	18.25633 AU
behind sun end	2065 Nov 23 12:25	1° <del>♊</del> 33'11			2072 Jun 25 10:27	30° <del>♋</del>	
max. Earth dist.	2065 Nov 23 06:02	1° <del>♊</del> 32'13	19.82697 AU	direct	2072 Sep 05 22:04	28° <del>♊</del> 10'52	
retrograde	2066 Mar 10 07:57	5° <del>♊</del> 46'44			2072 Nov 12 05:00	0° <del>♋</del>	
opposition	2066 May 24 14:46	3° <del>♊</del> 46'29	0°08'59				
min. Earth dist.	2066 May 24 15:07	3° <del>♊</del> 46'27	17.85905 AU	conjunction	2072 Dec 23 08:04	2° <del>♋</del> 20'21	0°-13'-39
direct	2066 Aug 09 22:07	1° <del>♊</del> 43'40		minimum elong	2072 Dec 23 08:04	2° <del>♋</del> 20'21	0°13'39
				behind sun begin	2072 Dec 23 04:23	2° <del>♋</del> 19'49	
conjunction	2066 Nov 27 23:38	6° <del>♊</del> 02'31	0°06'25	behind sun end	2072 Dec 23 11:45	2° <del>♋</del> 20'54	
minimum elong	2066 Nov 27 23:39	6° <del>♊</del> 02'31	0°06'24	max. Earth dist.	2072 Dec 23 18:33	2° <del>♋</del> 21'55	20.29038 AU
behind sun begin	2066 Nov 27 17:26	6° <del>♊</del> 01'35		retrograde	2073 Apr 09 19:55	6° <del>♋</del> 28'19	
behind sun end	2066 Nov 28 05:51	6° <del>♊</del> 03'27		opposition	2073 Jun 25 09:49	4° <del>♋</del> 28'49	0°-16'-49
max. Earth dist.	2066 Nov 27 23:19	6° <del>♊</del> 02'28	19.89172 AU	min. Earth dist.	2073 Jun 24 22:54	4° <del>♋</del> 29'56	18.32429 AU
retrograde	2067 Mar 15 01:06	10° <del>♊</del> 15'57		direct	2073 Sep 10 13:22	2° <del>♋</del> 28'24	
opposition	2067 May 29 12:39	8° <del>♊</del> 15'51	0°05'12				
min. Earth dist.	2067 May 29 11:38	8° <del>♊</del> 15'58	17.92421 AU	conjunction	2073 Dec 27 18:29	6° <del>♋</del> 36'26	0°-16'-44
direct	2067 Aug 14 19:40	6° <del>♊</del> 13'23		minimum elong	2073 Dec 27 18:29	6° <del>♋</del> 36'26	0°16'45
				max. Earth dist.	2073 Dec 28 06:53	6° <del>♋</del> 38'17	20.35837 AU
conjunction	2067 Dec 02 15:31	10° <del>♊</del> 30'42	0°03'01	retrograde	2074 Apr 14 10:38	10° <del>♋</del> 43'36	
minimum elong	2067 Dec 02 15:31	10° <del>♊</del> 30'42	0°03'01	opposition	2074 Jun 30 02:42	8° <del>♋</del> 44'15	0°-20'-11
behind sun begin	2067 Dec 02 08:58	10° <del>♊</del> 29'43		min. Earth dist.	2074 Jun 29 13:15	8° <del>♋</del> 45'37	18.39208 AU
behind sun end	2067 Dec 02 22:03	10° <del>♊</del> 31'41		direct	2074 Sep 15 06:19	6° <del>♋</del> 44'15	
max. Earth dist.	2067 Dec 02 17:35	10° <del>♊</del> 30'58	19.95715 AU				
retrograde	2068 Mar 18 18:12	14° <del>♊</del> 43'11		conjunction	2075 Jan 01 04:09	10° <del>♋</del> 50'51	0°-19'-42
opposition	2068 Jun 02 10:03	12° <del>♊</del> 43'13	0°01'24	minimum elong	2075 Jan 01 04:08	10° <del>♋</del> 50'51	0°19'43
min. Earth dist.	2068 Jun 02 07:07	12° <del>♊</del> 43'31	17.98972 AU	max. Earth dist.	2075 Jan 01 18:00	10° <del>♋</del> 52'55	20.42582 AU
direct	2068 Aug 18 17:27	10° <del>♊</del> 41'05		retrograde	2075 Apr 18 22:10	14° <del>♋</del> 57'17	
desc. node	2068 Oct 16 06:53	12° <del>♊</del> 05'45		opposition	2075 Jul 04 19:04	12° <del>♋</del> 58'05	0°-23'-24
				min. Earth dist.	2075 Jul 04 05:08	12° <del>♋</del> 59'30	18.45919 AU
conjunction	2068 Dec 06 06:11	14° <del>♊</del> 56'49	0°00'-28	direct	2075 Sep 19 19:45	10° <del>♋</del> 58'30	
minimum elong	2068 Dec 06 06:10	14° <del>♊</del> 56'49	0°00'29				
behind sun begin	2068 Dec 05 23:38	14° <del>♊</del> 55'51		conjunction	2076 Jan 05 13:14	15° <del>♋</del> 03'44	0°-22'-33
behind sun end	2068 Dec 06 12:43	14° <del>♊</del> 57'48		minimum elong	2076 Jan 05 13:14	15° <del>♋</del> 03'44	0°22'34
max. Earth dist.	2068 Dec 06 09:13	14° <del>♊</del> 57'14	20.02287 AU	max. Earth dist.	2076 Jan 06 04:37	15° <del>♋</del> 06'02	20.49237 AU
retrograde	2069 Mar 23 10:01	19° <del>♊</del> 08'22		retrograde	2076 Apr 22 11:54	19° <del>♋</del> 09'28	
opposition	2069 Jun 07 06:45	17° <del>♊</del> 08'29	0°-2'-22	opposition	2076 Jul 08 10:42	17° <del>♋</del> 10'26	0°-26'-29
min. Earth dist.	2069 Jun 07 02:39	17° <del>♊</del> 08'54	18.05570 AU	min. Earth dist.	2076 Jul 07 18:26	17° <del>♋</del> 12'04	18.52494 AU
direct	2069 Aug 23 13:17	15° <del>♊</del> 06'40		direct	2076 Sep 23 11:32	15° <del>♋</del> 11'15	
conjunction	2069 Dec 10 20:04	19° <del>♊</del> 20'49	0°-3'-54	conjunction	2077 Jan 08 21:38	19° <del>♋</del> 15'10	0°-25'-15
minimum elong	2069 Dec 10 20:05	19° <del>♊</del> 20'49	0°03'55	minimum elong	2077 Jan 08 21:38	19° <del>♋</del> 15'10	0°25'17
behind sun begin	2069 Dec 10 13:36	19° <del>♊</del> 19'51		max. Earth dist.	2077 Jan 09 14:22	19° <del>♋</del> 17'39	20.55707 AU
behind sun end	2069 Dec 11 02:33	19° <del>♊</del> 21'47		retrograde	2077 Apr 26 22:53	23° <del>♋</del> 20'15	
max. Earth dist.	2069 Dec 11 01:27	19° <del>♊</del> 21'36	20.08903 AU	min. Earth dist.	2077 Jul 12 09:31	21° <del>♋</del> 23'00	18.58860 AU
retrograde	2070 Mar 28 01:55	23° <del>♊</del> 31'25		opposition	2077 Jul 13 01:51	21° <del>♋</del> 21'21	0°-29'-24



direct	2077 Sep 27 23:22	19°☾22'33		retrograde	2085 May 30 03:18	26°☾00'03	
				min. Earth dist.	2085 Aug 15 06:10	24°☾03'25	18.96361 AU
conjunction	2078 Jan 13 05:40	23°☾25'13 0°-27'-49		opposition	2085 Aug 16 03:30	24°☾01'17	0°-45'-49
minimum elong	2078 Jan 13 05:40	23°☾25'13 0°27'50		direct	2085 Oct 31 10:57	22°☾04'19	
max. Earth dist.	2078 Jan 13 23:21	23°☾27'50 20.61939 AU					
retrograde	2078 May 01 11:08	27°☾29'40		conjunction	2086 Feb 14 05:38	25°☾58'56 0°-41'-57	
opposition	2078 Jul 17 16:01	25°☾30'54 0°-32'-9		minimum elong	2086 Feb 14 05:38	25°☾58'56 0°41'59	
min. Earth dist.	2078 Jul 16 21:45	25°☾32'44 18.64940 AU		max. Earth dist.	2086 Feb 15 04:17	26°☾02'12 20.97869 AU	
direct	2078 Oct 02 13:51	23°☾32'28		retrograde	2086 Jun 03 12:32	29°☾59'51	
				opposition	2086 Aug 20 12:55	28°☾01'03 0°-46'-52	
conjunction	2079 Jan 17 13:11	27°☾33'55 0°-30'-14		min. Earth dist.	2086 Aug 19 14:12	28°☾03'19 18.99367 AU	
minimum elong	2079 Jan 17 13:11	27°☾33'55 0°30'16		direct	2086 Nov 04 18:51	26°☾04'14	
max. Earth dist.	2079 Jan 18 07:52	27°☾36'41 20.67840 AU					
	2079 Mar 02 17:05	0°☾		conjunction	2087 Feb 18 10:15	29°☾58'12 0°-42'-49	
retrograde	2079 May 05 21:20	1°☾37'48		minimum elong	2087 Feb 18 10:15	29°☾58'12 0°42'49	
	2079 Jul 13 12:30	30°☾			2087 Feb 18 22:44	0°☾	
min. Earth dist.	2079 Jul 21 11:57	29°☾40'56 18.70671 AU		max. Earth dist.	2087 Feb 19 09:46	0°☾01'35 21.00700 AU	
opposition	2079 Jul 22 05:57	29°☾39'08 0°-34'-44		retrograde	2087 Jun 07 19:10	3°☾58'57	
direct	2079 Oct 07 00:43	27°☾41'02		opposition	2087 Aug 24 22:10	2°☾00'08 0°-47'-43	
	2079 Dec 23 06:31	0°☾		min. Earth dist.	2087 Aug 24 00:01	2°☾02'20 19.02037 AU	
				direct	2087 Nov 09 00:47	0°☾03'27	
conjunction	2080 Jan 21 20:08	1°☾41'19 0°-32'-29		conjunction	2088 Feb 22 14:40	3°☾56'51 0°-43'-29	
minimum elong	2080 Jan 21 20:08	1°☾41'19 0°32'29		minimum elong	2088 Feb 22 14:40	3°☾56'51 0°43'30	
max. Earth dist.	2080 Jan 22 15:23	1°☾44'08 20.73374 AU		max. Earth dist.	2088 Feb 23 14:13	4°☾00'15 21.03204 AU	
retrograde	2080 May 09 08:24	5°☾44'39		retrograde	2088 Jun 11 04:34	7°☾57'29	
opposition	2080 Jul 25 19:07	3°☾46'03 0°-37'-6		min. Earth dist.	2088 Aug 27 07:41	6°☾00'58 19.04356 AU	
min. Earth dist.	2080 Jul 24 23:23	3°☾48'01 18.75996 AU		opposition	2088 Aug 28 06:55	5°☾58'39 0°-48'-19	
direct	2080 Oct 10 13:27	1°☾48'13		direct	2088 Nov 12 07:29	4°☾02'07	
conjunction	2081 Jan 25 02:47	5°☾47'24 0°-34'-33		conjunction	2089 Feb 25 19:14	7°☾55'05 0°-43'-56	
minimum elong	2081 Jan 25 02:47	5°☾47'24 0°34'34		minimum elong	2089 Feb 25 19:14	7°☾55'05 0°43'56	
max. Earth dist.	2081 Jan 25 22:50	5°☾50'20 20.78470 AU		max. Earth dist.	2089 Feb 26 19:22	7°☾58'32 21.05323 AU	
retrograde	2081 May 13 17:25	9°☾50'13		retrograde	2089 Jun 15 11:15	11°☾55'39	
opposition	2081 Jul 30 07:38	7°☾51'38 0°-39'-17		opposition	2089 Sep 01 15:15	9°☾56'49 0°-48'-42	
min. Earth dist.	2081 Jul 29 12:27	7°☾53'33 18.80881 AU		min. Earth dist.	2089 Aug 31 16:57	9°☾59'02 19.06279 AU	
direct	2081 Oct 14 23:15	5°☾54'02		direct	2089 Nov 16 12:50	8°☾00'25	
conjunction	2082 Jan 29 08:57	9°☾52'10 0°-36'-26		conjunction	2090 Mar 01 23:48	11°☾53'01 0°-44'-10	
minimum elong	2082 Jan 29 08:56	9°☾52'10 0°36'26		minimum elong	2090 Mar 01 23:48	11°☾53'01 0°44'11	
max. Earth dist.	2082 Jan 30 05:13	9°☾55'08 20.83137 AU		max. Earth dist.	2090 Mar 02 23:30	11°☾56'25 21.07046 AU	
retrograde	2082 May 18 03:12	13°☾54'30		retrograde	2090 Jun 19 20:35	15°☾53'37	
opposition	2082 Aug 03 19:25	11°☾55'54 0°-41'-15		opposition	2090 Sep 05 23:20	13°☾54'46 0°-48'-50	
min. Earth dist.	2082 Aug 02 22:42	11°☾57'58 18.85325 AU		min. Earth dist.	2090 Sep 05 00:23	13°☾57'04 19.07780 AU	
direct	2082 Oct 19 10:12	9°☾58'29		direct	2090 Nov 20 18:36	11°☾58'30	
conjunction	2083 Feb 02 14:34	13°☾55'37 0°-38'-7		conjunction	2091 Mar 06 04:24	15°☾50'50 0°-44'-12	
minimum elong	2083 Feb 02 14:34	13°☾55'37 0°38'08		minimum elong	2091 Mar 06 04:24	15°☾50'50 0°44'13	
max. Earth dist.	2083 Feb 03 11:44	13°☾58'42 20.87360 AU		max. Earth dist.	2091 Mar 07 04:23	15°☾54'16 21.08305 AU	
	2083 Feb 21 05:21	15°☾		retrograde	2091 Jun 24 03:31	19°☾51'31	
retrograde	2083 May 22 11:03	17°☾57'31		min. Earth dist.	2091 Sep 09 09:32	17°☾54'50 19.08798 AU	
min. Earth dist.	2083 Aug 07 10:32	16°☾00'53 18.89357 AU		opposition	2091 Sep 10 07:21	17°☾52'39 0°-48'-45	
opposition	2083 Aug 08 06:47	15°☾58'52 0°-43'00		direct	2091 Nov 24 23:45	15°☾56'29	
	2083 Sep 03 00:14	15°☾					
direct	2083 Oct 23 18:41	14°☾01'37		conjunction	2092 Mar 09 09:19	19°☾48'38 0°-44'-1	
	2083 Dec 11 07:03	15°☾		minimum elong	2092 Mar 09 09:19	19°☾48'38 0°44'02	
				max. Earth dist.	2092 Mar 10 08:27	19°☾51'57 21.09078 AU	
conjunction	2084 Feb 06 19:52	17°☾57'49 0°-39'-36		retrograde	2092 Jun 27 13:00	23°☾49'27	
minimum elong	2084 Feb 06 19:52	17°☾57'49 0°39'37		opposition	2092 Sep 13 14:57	21°☾50'34 0°-48'-26	
max. Earth dist.	2084 Feb 07 17:23	18°☾00'56 20.91209 AU		min. Earth dist.	2092 Sep 12 16:58	21°☾52'45 19.09304 AU	
retrograde	2084 May 25 20:17	21°☾59'20		direct	2092 Nov 28 05:12	19°☾54'26	
opposition	2084 Aug 11 17:21	20°☾00'37 0°-44'-31					
min. Earth dist.	2084 Aug 10 19:33	20°☾02'47 18.93031 AU		conjunction	2093 Mar 13 14:33	23°☾46'31 0°-43'-38	
direct	2084 Oct 27 04:02	18°☾03'30		minimum elong	2093 Mar 13 14:33	23°☾46'31 0°43'39	
				max. Earth dist.	2093 Mar 14 13:25	23°☾49'47 21.09293 AU	
conjunction	2085 Feb 10 00:51	21°☾58'51 0°-40'-53		retrograde	2093 Jul 01 20:01	27°☾47'31	
minimum elong	2085 Feb 10 00:51	21°☾58'51 0°40'54		opposition	2093 Sep 17 22:32	25°☾48'33 0°-47'-53	
max. Earth dist.	2085 Feb 10 23:20	22°☾02'07 20.94700 AU					

min. Earth dist.	2093 Sep 17 02:00	25° <del>✕</del> 50'37	19.09230 AU
direct	2093 Dec 02 09:54	23° <del>✕</del> 52'27	
conjunction	2094 Mar 17 19:54	27° <del>✕</del> 44'30	0°-43'-2
minimum elong	2094 Mar 17 19:54	27° <del>✕</del> 44'30	0°43'02
max. Earth dist.	2094 Mar 18 17:28	27° <del>✕</del> 47'35	21.08935 AU
	2094 Apr 28 18:13	0° <del>Υ</del>	
retrograde	2094 Jul 06 05:34	1° <del>Υ</del> 45'43	
	2094 Sep 16 16:22	30° <del>℞</del>	
min. Earth dist.	2094 Sep 21 09:24	29° <del>✕</del> 48'42	19.08576 AU
opposition	2094 Sep 22 05:48	29° <del>✕</del> 46'39	0°-47'-6
direct	2094 Dec 06 15:38	27° <del>✕</del> 50'30	
	2095 Feb 19 03:00	0° <del>Υ</del>	
conjunction	2095 Mar 22 01:34	1° <del>Υ</del> 42'37	0°-42'-13
minimum elong	2095 Mar 22 01:34	1° <del>Υ</del> 42'37	0°42'15
max. Earth dist.	2095 Mar 22 22:46	1° <del>Υ</del> 45'39	21.07993 AU
retrograde	2095 Jul 10 12:33	5° <del>Υ</del> 44'05	
opposition	2095 Sep 26 13:03	3° <del>Υ</del> 44'53	0°-46'-5
min. Earth dist.	2095 Sep 25 18:08	3° <del>Υ</del> 46'47	19.07356 AU
direct	2095 Dec 10 19:45	1° <del>Υ</del> 48'39	
conjunction	2096 Mar 25 07:21	5° <del>Υ</del> 40'53	0°-41'-12
minimum elong	2096 Mar 25 07:21	5° <del>Υ</del> 40'53	0°41'13
max. Earth dist.	2096 Mar 26 03:17	5° <del>Υ</del> 43'44	21.06526 AU
retrograde	2096 Jul 13 22:08	9° <del>Υ</del> 42'38	
opposition	2096 Sep 29 20:01	7° <del>Υ</del> 43'16	0°-44'-51
min. Earth dist.	2096 Sep 29 01:22	7° <del>Υ</del> 45'09	19.05634 AU
direct	2096 Dec 14 01:47	5° <del>Υ</del> 46'55	
conjunction	2097 Mar 29 13:34	9° <del>Υ</del> 39'22	0°-39'-59
minimum elong	2097 Mar 29 13:34	9° <del>Υ</del> 39'22	0°40'00
max. Earth dist.	2097 Mar 30 09:12	9° <del>Υ</del> 42'10	21.04563 AU
retrograde	2097 Jul 18 05:35	13° <del>Υ</del> 41'27	
min. Earth dist.	2097 Oct 03 09:36	11° <del>Υ</del> 43'40	19.03450 AU
opposition	2097 Oct 04 02:47	11° <del>Υ</del> 41'55	0°-43'-24
direct	2097 Dec 18 05:43	9° <del>Υ</del> 45'25	
conjunction	2098 Apr 02 20:03	13° <del>Υ</del> 38'11	0°-38'-34
minimum elong	2098 Apr 02 20:03	13° <del>Υ</del> 38'11	0°38'35
max. Earth dist.	2098 Apr 03 14:22	13° <del>Υ</del> 40'48	21.02188 AU
retrograde	2098 Jul 22 15:04	17° <del>Υ</del> 40'40	
opposition	2098 Oct 08 09:35	15° <del>Υ</del> 40'58	0°-41'-44
min. Earth dist.	2098 Oct 07 16:39	15° <del>Υ</del> 42'41	19.00881 AU
direct	2098 Dec 22 11:31	13° <del>Υ</del> 44'18	
conjunction	2099 Apr 07 02:49	17° <del>Υ</del> 37'29	0°-36'-58
minimum elong	2099 Apr 07 02:49	17° <del>Υ</del> 37'29	0°36'59
max. Earth dist.	2099 Apr 07 20:58	17° <del>Υ</del> 40'04	20.99430 AU
retrograde	2099 Jul 26 23:35	21° <del>Υ</del> 40'26	
opposition	2099 Oct 12 16:28	19° <del>Υ</del> 40'34	0°-39'-53
min. Earth dist.	2099 Oct 12 00:52	19° <del>Υ</del> 42'09	18.97946 AU
direct	2099 Dec 26 16:10	17° <del>Υ</del> 43'45	
conjunction	2100 Apr 11 10:14	21° <del>Υ</del> 37'25	0°-35'-12
minimum elong	2100 Apr 11 10:14	21° <del>Υ</del> 37'25	0°35'13
max. Earth dist.	2100 Apr 12 02:53	21° <del>Υ</del> 39'48	20.96342 AU
retrograde	2100 Jul 31 09:29	25° <del>Υ</del> 40'53	
opposition	2100 Oct 16 23:14	23° <del>Υ</del> 40'51	0°-37'-49
min. Earth dist.	2100 Oct 16 08:07	23° <del>Υ</del> 42'24	18.94694 AU
direct	2100 Dec 30 21:24	21° <del>Υ</del> 43'52	

conjunction	2100 Apr 11 10:14	21° $\Upsilon$ 37'25	0°-35'-12	retrograde	2107 Aug 30 14:53	24° $\text{♄}$ 16'02	
minimum elong	2100 Apr 11 10:14	21° $\Upsilon$ 37'25	0°35'13	opposition	2107 Nov 15 06:33	22° $\text{♄}$ 15'10	0°-18'-30
max. Earth dist.	2100 Apr 12 02:53	21° $\Upsilon$ 39'48	20.96342 AU	min. Earth dist.	2107 Nov 15 01:13	22° $\text{♄}$ 15'44	18.62553 AU
retrograde	2100 Jul 31 09:29	25° $\Upsilon$ 40'53		direct	2108 Jan 28 20:36	20° $\text{♄}$ 16'39	
opposition	2100 Oct 16 23:14	23° $\Upsilon$ 40'51	0°-37'-49				
min. Earth dist.	2100 Oct 16 08:07	23° $\Upsilon$ 42'24	18.94694 AU	conjunction	2108 May 14 22:20	24° $\text{♄}$ 17'32	0°-15'-16
direct	2100 Dec 30 21:24	21° $\Upsilon$ 43'52		minimum elong	2108 May 14 22:21	24° $\text{♄}$ 17'32	0°15'16
				behind sun begin	2108 May 14 20:30	24° $\text{♄}$ 17'16	
conjunction	2101 Apr 15 18:15	25° $\Upsilon$ 38'09	0°-33'-14	behind sun end	2108 May 15 00:11	24° $\text{♄}$ 17'47	
minimum elong	2101 Apr 15 18:15	25° $\Upsilon$ 38'09	0°33'15	max. Earth dist.	2108 May 15 02:41	24° $\text{♄}$ 18'09	20.59581 AU
max. Earth dist.	2101 Apr 16 10:29	25° $\Upsilon$ 40'28	20.92923 AU	retrograde	2108 Sep 03 04:40	28° $\text{♄}$ 26'42	
retrograde	2101 Aug 04 18:50	29° $\Upsilon$ 42'10		opposition	2108 Nov 18 15:48	26° $\text{♄}$ 25'39	0°-15'-10
opposition	2101 Oct 21 06:18	27° $\Upsilon$ 42'02	0°-35'-34	min. Earth dist.	2108 Nov 18 12:12	26° $\text{♄}$ 26'02	18.56492 AU
min. Earth dist.	2101 Oct 20 16:34	27° $\Upsilon$ 43'26	18.91114 AU	direct	2109 Feb 01 06:02	24° $\text{♄}$ 26'45	
direct	2102 Jan 04 03:03	25° $\Upsilon$ 44'53					
				conjunction	2109 May 19 12:34	28° $\text{♄}$ 28'52	0°-12'-12
conjunction	2102 Apr 20 02:40	29° $\Upsilon$ 39'51	0°-31'-7	minimum elong	2109 May 19 12:34	28° $\text{♄}$ 28'52	0°12'14
minimum elong	2102 Apr 20 02:40	29° $\Upsilon$ 39'51	0°31'08	behind sun begin	2109 May 19 08:08	28° $\text{♄}$ 28'14	
max. Earth dist.	2102 Apr 20 17:10	29° $\Upsilon$ 41'56	20.89203 AU	behind sun end	2109 May 19 16:59	28° $\text{♄}$ 29'30	
	2102 Apr 25 23:12	0° $\text{♄}$		max. Earth dist.	2109 May 19 15:57	28° $\text{♄}$ 29'21	20.53361 AU
retrograde	2102 Aug 09 05:26	3° $\text{♄}$ 44'31			2109 Jun 15 04:24	0° $\text{♄}$	
opposition	2102 Oct 25 13:33	1° $\text{♄}$ 44'15	0°-33'-8	retrograde	2109 Sep 07 17:20	2° $\text{♄}$ 38'50	
min. Earth dist.	2102 Oct 25 00:27	1° $\text{♄}$ 45'35	18.87234 AU	opposition	2109 Nov 23 01:34	0° $\text{♄}$ 37'36	0°-11'-43
	2102 Dec 16 17:49	30° $\text{♄}$		min. Earth dist.	2109 Nov 22 23:34	0° $\text{♄}$ 37'49	18.50129 AU
direct	2103 Jan 08 08:32	29° $\Upsilon$ 46'55			2109 Dec 08 06:47	30° $\text{♄}$	
	2103 Jan 30 19:15	0° $\text{♄}$		direct	2110 Feb 05 15:25	28° $\text{♄}$ 38'20	
					2110 Apr 03 22:16	0° $\text{♄}$	
conjunction	2103 Apr 24 11:58	3° $\text{♄}$ 42'41	0°-28'-50				
minimum elong	2103 Apr 24 11:58	3° $\text{♄}$ 42'41	0°28'51	conjunction	2110 May 24 03:14	2° $\text{♄}$ 41'41	0°-9'-4
max. Earth dist.	2103 Apr 25 01:56	3° $\text{♄}$ 44'41	20.85164 AU	minimum elong	2110 May 24 03:13	2° $\text{♄}$ 41'41	0°09'05
retrograde	2103 Aug 13 15:37	7° $\text{♄}$ 48'01		behind sun begin	2110 May 23 21:31	2° $\text{♄}$ 40'52	
opposition	2103 Oct 29 21:03	5° $\text{♄}$ 47'39	0°-30'-31	behind sun end	2110 May 24 08:55	2° $\text{♄}$ 42'29	
min. Earth dist.	2103 Oct 29 09:30	5° $\text{♄}$ 48'50	18.83031 AU	max. Earth dist.	2110 May 24 03:50	2° $\text{♄}$ 41'46	20.46893 AU
direct	2104 Jan 12 14:54	3° $\text{♄}$ 50'10		retrograde	2110 Sep 12 07:36	6° $\text{♄}$ 52'30	
				opposition	2110 Nov 27 11:48	4° $\text{♄}$ 51'04	0°-8'-12
conjunction	2104 Apr 27 21:57	7° $\text{♄}$ 46'48	0°-26'-23	min. Earth dist.	2110 Nov 27 11:27	4° $\text{♄}$ 51'06	18.43566 AU
minimum elong	2104 Apr 27 21:57	7° $\text{♄}$ 46'48	0°26'25	direct	2111 Feb 10 01:52	2° $\text{♄}$ 51'22	
max. Earth dist.	2104 Apr 28 09:46	7° $\text{♄}$ 48'30	20.80810 AU				
retrograde	2104 Aug 17 03:23	11° $\text{♄}$ 52'51		conjunction	2111 May 28 19:00	6° $\text{♄}$ 56'04	0°-5'-52
opposition	2104 Nov 02 04:51	9° $\text{♄}$ 52'23	0°-27'-45	minimum elong	2111 May 28 19:01	6° $\text{♄}$ 56'04	0°05'53
min. Earth dist.	2104 Nov 01 18:26	9° $\text{♄}$ 53'27	18.78496 AU	behind sun begin	2111 May 28 12:35	6° $\text{♄}$ 55'09	
direct	2105 Jan 15 21:34	7° $\text{♄}$ 54'41		behind sun end	2111 May 29 01:27	6° $\text{♄}$ 56'59	
				max. Earth dist.	2111 May 28 18:58	6° $\text{♄}$ 56'04	20.40245 AU
conjunction	2105 May 02 08:53	11° $\text{♄}$ 52'18	0°-23'-48	retrograde	2111 Sep 16 21:48	11° $\text{♄}$ 07'44	
minimum elong	2105 May 02 08:53	11° $\text{♄}$ 52'18	0°23'49	opposition	2111 Dec 01 22:21	9° $\text{♄}$ 06'07	0°-4'-36
max. Earth dist.	2105 May 02 19:49	11° $\text{♄}$ 53'52	20.76082 AU	min. Earth dist.	2111 Dec 01 23:20	9° $\text{♄}$ 06'00	18.36855 AU
	2105 Jul 02 19:40	15° $\text{♄}$		direct	2112 Feb 14 12:42	7° $\text{♄}$ 06'01	
retrograde	2105 Aug 21 14:15	15° $\text{♄}$ 59'05					
	2105 Oct 11 11:22	15° $\text{♄}$		conjunction	2112 Jun 01 11:31	11° $\text{♄}$ 12'05	0°-2'-36
opposition	2105 Nov 06 12:56	13° $\text{♄}$ 58'32	0°-24'-48	minimum elong	2112 Jun 01 11:31	11° $\text{♄}$ 12'05	0°02'37
min. Earth dist.	2105 Nov 06 04:20	13° $\text{♄}$ 59'25	18.73573 AU	behind sun begin	2112 Jun 01 04:47	11° $\text{♄}$ 11'08	
direct	2106 Jan 20 04:29	12° $\text{♄}$ 00'36		behind sun end	2112 Jun 01 18:15	11° $\text{♄}$ 13'03	
	2106 Apr 19 14:33	15° $\text{♄}$		max. Earth dist.	2112 Jun 01 08:36	11° $\text{♄}$ 11'43	20.33497 AU
				retrograde	2112 Sep 20 12:53	15° $\text{♄}$ 24'38	
conjunction	2106 May 06 20:31	15° $\text{♄}$ 59'15	0°-21'-5	opposition	2112 Dec 05 09:33	13° $\text{♄}$ 22'50	0°00'-58
minimum elong	2106 May 06 20:31	15° $\text{♄}$ 59'15	0°21'05	min. Earth dist.	2112 Dec 05 12:15	13° $\text{♄}$ 22'33	18.30082 AU
max. Earth dist.	2106 May 07 04:49	16° $\text{♄}$ 00'26	20.70977 AU	direct	2113 Feb 18 00:05	11° $\text{♄}$ 22'19	
retrograde	2106 Aug 26 03:16	20° $\text{♄}$ 06'50		asc. node	2113 Mar 14 08:36	11° $\text{♄}$ 38'03	
opposition	2106 Nov 10 21:31	18° $\text{♄}$ 06'08	0°-21'-43				
min. Earth dist.	2106 Nov 10 14:24	18° $\text{♄}$ 06'52	18.68268 AU	conjunction	2113 Jun 06 04:58	15° $\text{♄}$ 29'51	0°00'47
direct	2107 Jan 24 12:35	16° $\text{♄}$ 07'55		minimum elong	2113 Jun 06 04:57	15° $\text{♄}$ 29'51	0°00'48
				behind sun begin	2113 Jun 05 22:12	15° $\text{♄}$ 28'53	
conjunction	2107 May 11 09:01	20° $\text{♄}$ 07'40	0°-18'-14	behind sun end	2113 Jun 06 11:42	15° $\text{♄}$ 30'49	
minimum elong	2107 May 11 09:01	20° $\text{♄}$ 07'40	0°18'15	max. Earth dist.	2113 Jun 06 01:32	15° $\text{♄}$ 29'24	20.26701 AU
max. Earth dist.	2107 May 11 16:17	20° $\text{♄}$ 08'42	20.65466 AU	retrograde	2113 Sep 25 04:43	19° $\text{♄}$ 43'16	

opposition	2113 Dec 09 21:12	17° $\Pi$ 41'19	0°02'41	opposition	2121 Jan 09 02:51	18° $\mathfrak{G}$ 46'54	0°27'32
min. Earth dist.	2113 Dec 10 00:53	17° $\Pi$ 40'56	18.23287 AU	min. Earth dist.	2121 Jan 09 17:09	18° $\mathfrak{G}$ 45'21	17.77991 AU
direct	2114 Feb 22 12:25	15° $\Pi$ 40'25		direct	2121 Mar 24 21:29	16° $\mathfrak{G}$ 43'31	
conjunction	2114 Jun 10 23:05	19° $\Pi$ 49'26	0°04'08	conjunction	2121 Jul 13 09:06	21° $\mathfrak{G}$ 03'31	0°26'12
minimum elong	2114 Jun 10 23:06	19° $\Pi$ 49'26	0°04'08	minimum elong	2121 Jul 13 09:05	21° $\mathfrak{G}$ 03'31	0°26'12
behind sun begin	2114 Jun 10 16:26	19° $\Pi$ 48'28		max. Earth dist.	2121 Jul 12 15:42	21° $\mathfrak{G}$ 00'52	19.74917 AU
behind sun end	2114 Jun 11 05:45	19° $\Pi$ 50'23		retrograde	2121 Oct 31 15:13	25° $\mathfrak{G}$ 23'48	
max. Earth dist.	2114 Jun 10 16:54	19° $\Pi$ 48'33	20.19929 AU	opposition	2122 Jan 13 20:18	23° $\mathfrak{G}$ 21'16	0°30'41
retrograde	2114 Sep 29 21:07	24° $\Pi$ 03'46		min. Earth dist.	2122 Jan 14 11:01	23° $\mathfrak{G}$ 19'40	17.71880 AU
opposition	2114 Dec 14 09:35	22° $\Pi$ 01'41	0°06'22	direct	2122 Mar 29 17:55	21° $\mathfrak{G}$ 17'30	
min. Earth dist.	2114 Dec 14 15:00	22° $\Pi$ 01'07	18.16552 AU				
direct	2115 Feb 27 00:45	20° $\Pi$ 00'24		conjunction	2122 Jul 18 10:23	25° $\mathfrak{G}$ 38'57	0°28'57
				minimum elong	2122 Jul 18 10:22	25° $\mathfrak{G}$ 38'57	0°28'57
conjunction	2115 Jun 15 18:20	24° $\Pi$ 10'57	0°07'26	max. Earth dist.	2122 Jul 17 14:53	25° $\mathfrak{G}$ 35'59	19.68880 AU
minimum elong	2115 Jun 15 18:21	24° $\Pi$ 10'57	0°07'27	retrograde	2122 Nov 05 11:30	29° $\mathfrak{G}$ 59'54	
behind sun begin	2115 Jun 15 12:11	24° $\Pi$ 10'04		opposition	2123 Jan 18 14:30	27° $\mathfrak{G}$ 57'16	0°33'40
behind sun end	2115 Jun 16 00:30	24° $\Pi$ 11'50		min. Earth dist.	2123 Jan 19 07:31	27° $\mathfrak{G}$ 55'25	17.65951 AU
max. Earth dist.	2115 Jun 15 11:44	24° $\Pi$ 09'59	20.13227 AU	direct	2123 Apr 03 12:58	25° $\mathfrak{G}$ 53'06	
retrograde	2115 Oct 04 15:00	28° $\Pi$ 26'11			2123 Jul 19 04:07	0° $\mathcal{O}$	
opposition	2115 Dec 18 22:35	26° $\Pi$ 24'02	0°10'02				
min. Earth dist.	2115 Dec 19 04:46	26° $\Pi$ 23'22	18.09888 AU	conjunction	2123 Jul 23 12:20	0° $\mathcal{O}$ 15'58	0°31'32
direct	2116 Mar 02 14:21	24° $\Pi$ 22'23		minimum elong	2123 Jul 23 12:20	0° $\mathcal{O}$ 15'58	0°31'32
				max. Earth dist.	2123 Jul 22 15:43	0° $\mathcal{O}$ 12'49	19.63064 AU
conjunction	2116 Jun 19 14:27	28° $\Pi$ 34'30	0°10'43	retrograde	2123 Nov 10 10:00	4° $\mathcal{O}$ 37'32	
minimum elong	2116 Jun 19 14:27	28° $\Pi$ 34'30	0°10'43	opposition	2124 Jan 23 09:17	2° $\mathcal{O}$ 34'48	0°36'27
behind sun begin	2116 Jun 19 09:19	28° $\Pi$ 33'46		min. Earth dist.	2124 Jan 24 02:27	2° $\mathcal{O}$ 32'55	17.60260 AU
behind sun end	2116 Jun 19 19:35	28° $\Pi$ 35'15		direct	2124 Apr 07 11:38	0° $\mathcal{O}$ 30'14	
max. Earth dist.	2116 Jun 19 05:01	28° $\Pi$ 33'07	20.06616 AU				
	2116 Jul 13 22:02	0° $\mathfrak{G}$		conjunction	2124 Jul 27 14:50	4° $\mathcal{O}$ 54'26	0°33'55
retrograde	2116 Oct 08 09:15	2° $\mathfrak{G}$ 50'39		minimum elong	2124 Jul 27 14:50	4° $\mathcal{O}$ 54'26	0°33'54
opposition	2116 Dec 22 12:16	0° $\mathfrak{G}$ 48'26	0°13'41	max. Earth dist.	2124 Jul 26 16:56	4° $\mathcal{O}$ 51'05	19.57509 AU
min. Earth dist.	2116 Dec 22 20:27	0° $\mathfrak{G}$ 47'33	18.03335 AU	retrograde	2124 Nov 14 06:57	9° $\mathcal{O}$ 16'33	
	2117 Jan 10 20:24	30° $\mathcal{R}$ $\Pi$		opposition	2125 Jan 27 04:52	7° $\mathcal{O}$ 13'44	0°39'00
direct	2117 Mar 07 04:09	28° $\Pi$ 46'27		min. Earth dist.	2125 Jan 27 23:58	7° $\mathcal{O}$ 11'38	17.54883 AU
	2117 Apr 30 00:11	0° $\mathfrak{G}$		direct	2125 Apr 12 08:20	5° $\mathcal{O}$ 08'47	
conjunction	2117 Jun 24 11:40	3° $\mathfrak{G}$ 00'11	0°13'58	conjunction	2125 Aug 01 17:43	9° $\mathcal{O}$ 34'16	0°36'05
minimum elong	2117 Jun 24 11:40	3° $\mathfrak{G}$ 00'11	0°13'58	minimum elong	2125 Aug 01 17:43	9° $\mathcal{O}$ 34'16	0°36'06
behind sun begin	2117 Jun 24 08:25	2° $\mathfrak{G}$ 59'42		max. Earth dist.	2125 Jul 31 18:45	9° $\mathcal{O}$ 30'44	19.52321 AU
behind sun end	2117 Jun 24 14:54	3° $\mathfrak{G}$ 00'39		retrograde	2125 Nov 19 06:33	13° $\mathcal{O}$ 56'53	
max. Earth dist.	2117 Jun 24 01:42	2° $\mathfrak{G}$ 58'42	20.00112 AU	opposition	2126 Feb 01 00:58	11° $\mathcal{O}$ 53'58	0°41'18
retrograde	2117 Oct 13 04:51	7° $\mathfrak{G}$ 17'13		min. Earth dist.	2126 Feb 01 19:49	11° $\mathcal{O}$ 51'54	17.49905 AU
opposition	2117 Dec 27 02:43	5° $\mathfrak{G}$ 14'58	0°17'17	direct	2126 Apr 17 08:37	9° $\mathcal{O}$ 48'41	
min. Earth dist.	2117 Dec 27 11:37	5° $\mathfrak{G}$ 14'01	17.96877 AU				
direct	2118 Mar 11 19:14	3° $\mathfrak{G}$ 12'40		conjunction	2126 Aug 06 20:59	14° $\mathcal{O}$ 15'21	0°38'01
				minimum elong	2126 Aug 06 20:59	14° $\mathcal{O}$ 15'21	0°38'01
conjunction	2118 Jun 29 09:30	7° $\mathfrak{G}$ 27'59	0°17'10	max. Earth dist.	2126 Aug 05 21:46	14° $\mathcal{O}$ 11'46	19.47553 AU
minimum elong	2118 Jun 29 09:30	7° $\mathfrak{G}$ 27'59	0°17'10		2126 Aug 18 22:43	15° $\mathcal{O}$	
max. Earth dist.	2118 Jun 28 20:47	7° $\mathfrak{G}$ 26'05	19.93697 AU	retrograde	2126 Nov 24 04:29	18° $\mathcal{O}$ 38'25	
retrograde	2118 Oct 18 00:38	11° $\mathfrak{G}$ 45'55		opposition	2127 Feb 05 21:53	16° $\mathcal{O}$ 35'26	0°43'20
opposition	2118 Dec 31 18:03	9° $\mathfrak{G}$ 43'37	0°20'48	min. Earth dist.	2127 Feb 06 18:11	16° $\mathcal{O}$ 33'13	17.45384 AU
min. Earth dist.	2119 Jan 01 05:13	9° $\mathfrak{G}$ 42'25	17.90513 AU		2127 Mar 19 04:23	15° $\mathcal{R}$ $\mathcal{O}$	
direct	2119 Mar 16 10:40	7° $\mathfrak{G}$ 40'58		direct	2127 Apr 22 06:41	14° $\mathcal{O}$ 29'50	
					2127 May 26 00:43	15° $\mathcal{O}$	
conjunction	2119 Jul 04 08:38	11° $\mathfrak{G}$ 57'53	0°20'17	max. Earth dist.	2127 Aug 11 00:19	18° $\mathcal{O}$ 53'50	19.43289 AU
minimum elong	2119 Jul 04 08:38	11° $\mathfrak{G}$ 57'53	0°20'16				
max. Earth dist.	2119 Jul 03 19:02	11° $\mathfrak{G}$ 55'51	19.87363 AU	conjunction	2127 Aug 12 00:39	18° $\mathcal{O}$ 57'37	0°39'42
retrograde	2119 Oct 22 21:29	16° $\mathfrak{G}$ 16'39		minimum elong	2127 Aug 12 00:39	18° $\mathcal{O}$ 57'37	0°39'42
opposition	2120 Jan 05 09:56	14° $\mathfrak{G}$ 14'18	0°24'14	retrograde	2127 Nov 29 04:45	23° $\mathcal{O}$ 21'04	
min. Earth dist.	2120 Jan 05 21:51	14° $\mathfrak{G}$ 13'01	17.84211 AU	opposition	2128 Feb 10 19:11	21° $\mathcal{O}$ 18'04	0°45'05
direct	2120 Mar 20 04:21	12° $\mathfrak{G}$ 11'18		min. Earth dist.	2128 Feb 11 15:03	21° $\mathcal{O}$ 15'53	17.41394 AU
				direct	2128 Apr 26 07:55	19° $\mathcal{O}$ 12'12	
conjunction	2120 Jul 08 08:32	16° $\mathfrak{G}$ 29'47	0°23'18	max. Earth dist.	2128 Aug 15 04:57	23° $\mathcal{O}$ 37'20	19.39571 AU
minimum elong	2120 Jul 08 08:31	16° $\mathfrak{G}$ 29'47	0°23'19				
max. Earth dist.	2120 Jul 07 16:10	16° $\mathfrak{G}$ 27'18	19.81090 AU	conjunction	2128 Aug 16 04:43	23° $\mathcal{O}$ 41'01	0°41'08
retrograde	2120 Oct 26 17:32	20° $\mathfrak{G}$ 49'20		minimum elong	2128 Aug 16 04:43	23° $\mathcal{O}$ 41'01	0°41'08

retrograde	2128 Dec 03 04:06	28°♏04'48		conjunction	2136 Sep 24 14:59	1°♊56'55	0°42'04
opposition	2129 Feb 14 17:24	26°♏01'50	0°46'32	minimum elong	2136 Sep 24 14:59	1°♊56'55	0°42'04
min. Earth dist.	2129 Feb 15 14:09	25°♏59'33	17.37972 AU	max. Earth dist.	2136 Sep 23 16:43	1°♊53'24	19.29758 AU
direct	2129 May 01 07:28	23°♏55'47		retrograde	2137 Jan 10 09:12	6°♊20'36	
max. Earth dist.	2129 Aug 20 07:55	28°♏21'39	19.36452 AU	opposition	2137 Mar 24 20:20	4°♊18'23	0°46'17
				min. Earth dist.	2137 Mar 25 15:14	4°♊16'20	17.30240 AU
conjunction	2129 Aug 21 08:41	28°♏25'31	0°42'17	direct	2137 Jun 09 07:20	2°♊12'06	
minimum elong	2129 Aug 21 08:41	28°♏25'31	0°42'16				
	2129 Sep 16 02:23	0°♐		conjunction	2137 Sep 29 18:00	6°♊44'22	0°40'50
retrograde	2129 Dec 08 04:53	2°♐49'35		minimum elong	2137 Sep 29 18:00	6°♊44'22	0°40'49
opposition	2130 Feb 19 16:04	0°♐46'41	0°47'40	max. Earth dist.	2137 Sep 28 20:15	6°♊40'57	19.30778 AU
min. Earth dist.	2130 Feb 20 12:16	0°♐44'28	17.35157 AU	retrograde	2138 Jan 15 07:30	11°♊07'39	
	2130 Mar 09 19:54	30°♐♏		opposition	2138 Mar 29 22:02	9°♊05'29	0°44'44
direct	2130 May 06 09:04	28°♏40'30		min. Earth dist.	2138 Mar 30 16:58	9°♊03'26	17.31521 AU
	2130 Jul 01 04:34	0°♐		direct	2138 Jun 14 10:53	6°♊59'14	
conjunction	2130 Aug 26 13:11	3°♐11'04	0°43'09	conjunction	2138 Oct 04 20:33	11°♊31'07	0°39'18
minimum elong	2130 Aug 26 13:11	3°♐11'04	0°43'10	minimum elong	2138 Oct 04 20:33	11°♊31'07	0°39'19
max. Earth dist.	2130 Aug 25 13:32	3°♐07'22	19.33926 AU	max. Earth dist.	2138 Oct 04 00:00	11°♊27'52	19.32327 AU
retrograde	2130 Dec 13 05:39	7°♐35'20		retrograde	2139 Jan 20 07:51	15°♊53'52	
opposition	2131 Feb 24 15:15	5°♐32'33	0°48'29	opposition	2139 Apr 03 23:30	13°♊51'47	0°42'53
min. Earth dist.	2131 Feb 25 12:01	5°♐30'16	17.32916 AU	min. Earth dist.	2139 Apr 04 16:37	13°♊49'56	17.33323 AU
direct	2131 May 11 09:50	3°♐26'18		direct	2139 Jun 19 16:28	11°♊45'35	
conjunction	2131 Aug 31 17:41	7°♐57'34	0°43'44	conjunction	2139 Oct 09 22:27	16°♊16'56	0°37'31
minimum elong	2131 Aug 31 17:41	7°♐57'34	0°43'44	minimum elong	2139 Oct 09 22:27	16°♊16'56	0°37'31
max. Earth dist.	2131 Aug 30 16:54	7°♐53'41	19.31970 AU	max. Earth dist.	2139 Oct 09 03:22	16°♊13'56	19.34406 AU
retrograde	2131 Dec 18 06:34	12°♐22'00		retrograde	2140 Jan 25 05:54	20°♊39'07	
opposition	2132 Feb 29 15:04	10°♐19'18	0°48'58	opposition	2140 Apr 08 01:15	18°♊37'05	0°40'45
min. Earth dist.	2132 Mar 01 11:38	10°♐17'03	17.31237 AU	min. Earth dist.	2140 Apr 08 18:07	18°♊35'16	17.35690 AU
direct	2132 May 15 11:43	8°♐13'00		direct	2140 Jun 23 19:06	16°♊31'00	
conjunction	2132 Sep 04 22:20	12°♐44'51	0°44'01	conjunction	2140 Oct 13 23:22	21°♊01'39	0°35'29
minimum elong	2132 Sep 04 22:20	12°♐44'51	0°44'01	minimum elong	2140 Oct 13 23:22	21°♊01'39	0°35'29
max. Earth dist.	2132 Sep 03 22:50	12°♐41'10	19.30544 AU	max. Earth dist.	2140 Oct 13 05:34	20°♊58'51	19.37071 AU
retrograde	2132 Dec 22 08:17	17°♐09'19		retrograde	2141 Jan 29 06:01	25°♊23'12	
opposition	2133 Mar 05 15:29	15°♐06'45	0°49'07	opposition	2141 Apr 13 02:43	23°♊21'16	0°38'20
min. Earth dist.	2133 Mar 06 12:05	15°♐04'30	17.30062 AU	min. Earth dist.	2141 Apr 13 17:06	23°♊19'43	17.38641 AU
direct	2133 May 20 14:19	13°♐00'26		direct	2141 Jun 28 23:49	21°♊15'20	
max. Earth dist.	2133 Sep 09 02:23	17°♐28'51	19.29622 AU				
				conjunction	2141 Oct 18 23:44	25°♊45'11	0°33'13
conjunction	2133 Sep 10 02:47	17°♐32'41	0°43'59	minimum elong	2141 Oct 18 23:44	25°♊45'11	0°33'12
minimum elong	2133 Sep 10 02:47	17°♐32'41	0°44'00	max. Earth dist.	2141 Oct 18 08:14	25°♊42'45	19.40321 AU
retrograde	2133 Dec 27 08:11	21°♐57'07			2142 Jan 19 11:51	0°♌	
opposition	2134 Mar 10 16:13	19°♐54'39	0°48'55	retrograde	2142 Feb 03 03:13	0°♌06'03	
min. Earth dist.	2134 Mar 11 12:49	19°♐52'24	17.29396 AU		2142 Feb 17 23:32	30°♌♊	
direct	2134 May 25 17:00	17°♐48'18		opposition	2142 Apr 18 04:03	28°♌04'15	0°35'41
max. Earth dist.	2134 Sep 14 08:05	22°♐17'11	19.29193 AU	min. Earth dist.	2142 Apr 18 17:55	28°♌02'46	17.42191 AU
				direct	2142 Jul 04 01:17	25°♌58'31	
conjunction	2134 Sep 15 07:12	22°♐20'49	0°43'39		2142 Oct 16 16:19	0°♌	
minimum elong	2134 Sep 15 07:12	22°♐20'49	0°43'39				
retrograde	2135 Jan 01 09:33	26°♐45'05		conjunction	2142 Oct 23 23:14	0°♌27'29	0°30'44
opposition	2135 Mar 15 17:22	24°♐42'43	0°48'23	minimum elong	2142 Oct 23 23:15	0°♌27'29	0°30'44
min. Earth dist.	2135 Mar 16 13:26	24°♐40'31	17.29192 AU	max. Earth dist.	2142 Oct 23 08:45	0°♌25'13	19.44175 AU
direct	2135 May 30 21:36	22°♐36'23		retrograde	2143 Feb 08 02:49	4°♌47'38	
max. Earth dist.	2135 Sep 19 11:44	27°♐05'16	19.29228 AU	opposition	2143 Apr 23 05:07	2°♌45'59	0°32'48
				min. Earth dist.	2143 Apr 23 16:20	2°♌44'47	17.46315 AU
conjunction	2135 Sep 20 11:16	27°♐08'59	0°43'01	direct	2143 Jul 09 05:04	0°♌40'32	
minimum elong	2135 Sep 20 11:16	27°♐08'59	0°43'01				
	2135 Nov 08 07:37	0°♌		conjunction	2143 Oct 28 22:01	5°♌08'31	0°28'03
retrograde	2136 Jan 06 08:25	1°♌33'00		minimum elong	2143 Oct 28 22:01	5°♌08'31	0°28'04
	2136 Mar 08 11:04	30°♌♐		max. Earth dist.	2143 Oct 28 10:17	5°♌06'41	19.48569 AU
opposition	2136 Mar 19 18:45	29°♌30'43	0°47'30	retrograde	2144 Feb 12 23:14	9°♌27'55	
min. Earth dist.	2136 Mar 20 14:55	29°♌28'31	17.29475 AU	opposition	2144 Apr 27 06:09	7°♌26'29	0°29'43
direct	2136 Jun 04 01:22	27°♌24'23		min. Earth dist.	2144 Apr 27 16:39	7°♌25'21	17.50957 AU
	2136 Aug 23 17:33	0°♌		direct	2144 Jul 13 06:15	5°♌21'22	

conjunction	2144 Nov 01 19:52	9° <del>M</del> 48'15	0°25'13	min. Earth dist.	2151 May 31 01:16	9° <del>2</del> 27'33	17.92188 AU
minimum elong	2144 Nov 01 19:52	9° <del>M</del> 48'15	0°25'13	direct	2151 Aug 16 09:26	7° <del>2</del> 24'55	
max. Earth dist.	2144 Nov 01 09:00	9° <del>M</del> 46'33	19.53462 AU				
retrograde	2145 Feb 16 21:44	14° <del>M</del> 06'53		conjunction	2151 Dec 04 05:00	11° <del>2</del> 42'13	0°02'22
opposition	2145 May 02 06:44	12° <del>M</del> 05'38	0°26'27	minimum elong	2151 Dec 04 05:00	11° <del>2</del> 42'13	0°02'22
min. Earth dist.	2145 May 02 14:43	12° <del>M</del> 04'47	17.56064 AU	behind sun begin	2151 Dec 03 22:26	11° <del>2</del> 41'14	
direct	2145 Jul 18 09:08	10° <del>M</del> 00'52		behind sun end	2151 Dec 04 11:33	11° <del>2</del> 43'12	
				max. Earth dist.	2151 Dec 04 06:53	11° <del>2</del> 42'27	19.95435 AU
conjunction	2145 Nov 06 16:57	14° <del>M</del> 26'36	0°22'13	retrograde	2152 Mar 20 07:12	15° <del>2</del> 54'39	
minimum elong	2145 Nov 06 16:57	14° <del>M</del> 26'36	0°22'14	opposition	2152 Jun 03 23:19	13° <del>2</del> 54'36	0°00'41
max. Earth dist.	2145 Nov 06 08:58	14° <del>M</del> 25'22	19.58765 AU	min. Earth dist.	2152 Jun 03 20:43	13° <del>2</del> 54'53	17.98654 AU
	2145 Nov 15 14:49	15° <del>M</del>		desc. node	2152 Aug 09 23:36	11° <del>2</del> 55'05	
retrograde	2146 Feb 21 17:14	18° <del>M</del> 44'25		direct	2152 Aug 20 07:42	11° <del>2</del> 52'24	
opposition	2146 May 07 07:07	16° <del>M</del> 43'24	0°23'02				
min. Earth dist.	2146 May 07 14:20	16° <del>M</del> 42'38	17.61535 AU	conjunction	2152 Dec 07 19:36	16° <del>2</del> 08'06	0°-1'-8
	2146 Jun 24 11:55	15° <del>R</del> <del>M</del>		minimum elong	2152 Dec 07 19:37	16° <del>2</del> 08'06	0°01'08
direct	2146 Jul 23 09:50	14° <del>M</del> 39'01		behind sun begin	2152 Dec 07 13:03	16° <del>2</del> 07'08	
	2146 Aug 20 21:24	15° <del>M</del>		behind sun end	2152 Dec 08 02:10	16° <del>2</del> 09'05	
				max. Earth dist.	2152 Dec 07 22:31	16° <del>2</del> 08'30	20.01948 AU
conjunction	2146 Nov 11 13:07	19° <del>M</del> 03'30	0°19'06	retrograde	2153 Mar 24 22:54	20° <del>2</del> 19'37	
minimum elong	2146 Nov 11 13:07	19° <del>M</del> 03'30	0°19'05	opposition	2153 Jun 08 19:46	18° <del>2</del> 19'40	0°-3'-4
max. Earth dist.	2146 Nov 11 05:44	19° <del>M</del> 02'21	19.64401 AU	min. Earth dist.	2153 Jun 08 15:45	18° <del>2</del> 20'05	18.05226 AU
retrograde	2147 Feb 26 14:22	23° <del>M</del> 20'28		direct	2153 Aug 25 02:38	16° <del>2</del> 17'45	
opposition	2147 May 12 06:59	21° <del>M</del> 19'39	0°19'29				
min. Earth dist.	2147 May 12 12:03	21° <del>M</del> 19'07	17.67312 AU	conjunction	2153 Dec 12 09:22	20° <del>2</del> 31'55	0°-4'-32
direct	2147 Jul 28 11:44	19° <del>M</del> 15'39		minimum elong	2153 Dec 12 09:21	20° <del>2</del> 31'55	0°04'33
				behind sun begin	2153 Dec 12 02:56	20° <del>2</del> 30'58	
conjunction	2147 Nov 16 08:38	23° <del>M</del> 38'49	0°15'52	behind sun end	2153 Dec 12 15:47	20° <del>2</del> 32'52	
minimum elong	2147 Nov 16 08:38	23° <del>M</del> 38'49	0°15'52	max. Earth dist.	2153 Dec 12 14:53	20° <del>2</del> 32'44	20.08567 AU
behind sun begin	2147 Nov 16 07:19	23° <del>M</del> 38'37		retrograde	2154 Mar 29 14:21	24° <del>2</del> 42'29	
behind sun end	2147 Nov 16 09:58	23° <del>M</del> 39'01		opposition	2154 Jun 13 15:29	22° <del>2</del> 42'38	0°-6'-48
max. Earth dist.	2147 Nov 16 04:03	23° <del>M</del> 38'07	19.70302 AU	min. Earth dist.	2154 Jun 13 09:13	22° <del>2</del> 43'17	18.11888 AU
retrograde	2148 Mar 02 08:44	27° <del>M</del> 54'55		direct	2154 Aug 29 23:00	20° <del>2</del> 41'05	
opposition	2148 May 16 06:40	25° <del>M</del> 54'18	0°15'49				
min. Earth dist.	2148 May 16 10:39	25° <del>M</del> 53'53	17.73314 AU	conjunction	2154 Dec 16 22:04	24° <del>2</del> 53'40	0°-7'-51
direct	2148 Aug 01 12:06	23° <del>M</del> 50'41		minimum elong	2154 Dec 16 22:04	24° <del>2</del> 53'41	0°07'52
				behind sun begin	2154 Dec 16 16:09	24° <del>2</del> 52'48	
conjunction	2148 Nov 20 02:58	28° <del>M</del> 12'27	0°12'34	behind sun end	2154 Dec 17 03:59	24° <del>2</del> 54'33	
minimum elong	2148 Nov 20 02:57	28° <del>M</del> 12'26	0°12'34	max. Earth dist.	2154 Dec 17 04:51	24° <del>2</del> 54'41	20.15279 AU
behind sun begin	2148 Nov 19 22:39	28° <del>M</del> 11'47		retrograde	2155 Apr 03 04:55	29° <del>2</del> 03'22	
behind sun end	2148 Nov 20 07:15	28° <del>M</del> 13'06		opposition	2155 Jun 18 10:35	27° <del>2</del> 03'37	0°-10'-27
max. Earth dist.	2148 Nov 19 22:57	28° <del>M</del> 11'50	19.76403 AU	min. Earth dist.	2155 Jun 18 02:58	27° <del>2</del> 04'24	18.18665 AU
	2148 Dec 19 20:45	0° <del>2</del>		direct	2155 Sep 03 16:07	25° <del>2</del> 02'26	
retrograde	2149 Mar 07 04:14	2° <del>2</del> 27'41					
opposition	2149 May 21 05:46	0° <del>2</del> 27'13	0°12'05	conjunction	2155 Dec 21 10:05	29° <del>2</del> 13'30	0°-11'-5
min. Earth dist.	2149 May 21 07:51	0° <del>2</del> 27'00	17.79499 AU	minimum elong	2155 Dec 21 10:05	29° <del>2</del> 13'30	0°11'06
	2149 Jun 01 04:36	30° <del>R</del> <del>M</del>		behind sun begin	2155 Dec 21 05:08	29° <del>2</del> 12'46	
direct	2149 Aug 06 12:15	28° <del>M</del> 23'58		behind sun end	2155 Dec 21 15:02	29° <del>2</del> 14'13	
	2149 Oct 07 23:24	0° <del>2</del>		max. Earth dist.	2155 Dec 21 19:19	29° <del>2</del> 14'53	20.22103 AU
					2156 Jan 03 06:30	0° <del>2</del>	
conjunction	2149 Nov 24 20:40	2° <del>2</del> 44'17	0°09'12	retrograde	2156 Apr 06 19:38	3° <del>2</del> 22'18	
minimum elong	2149 Nov 24 20:41	2° <del>2</del> 44'18	0°09'11	opposition	2156 Jun 22 04:54	1° <del>2</del> 22'43	0°-14'-1
behind sun begin	2149 Nov 24 15:05	2° <del>2</del> 43'27		min. Earth dist.	2156 Jun 21 18:45	1° <del>2</del> 23'45	18.25521 AU
behind sun end	2149 Nov 25 02:17	2° <del>2</del> 45'08			2156 Jul 29 09:08	30° <del>R</del> <del>2</del>	
max. Earth dist.	2149 Nov 24 19:18	2° <del>2</del> 44'06	19.82652 AU	direct	2156 Sep 07 10:25	29° <del>2</del> 21'55	
retrograde	2150 Mar 11 21:26	6° <del>2</del> 58'36			2156 Oct 16 05:58	0° <del>2</del>	
opposition	2150 May 26 04:08	4° <del>2</del> 58'19	0°08'18				
min. Earth dist.	2150 May 26 04:56	4° <del>2</del> 58'14	17.85793 AU	conjunction	2156 Dec 24 21:08	3° <del>2</del> 31'29	0°-14'-15
direct	2150 Aug 11 11:44	2° <del>2</del> 55'25		minimum elong	2156 Dec 24 21:08	3° <del>2</del> 31'29	0°14'16
				behind sun begin	2156 Dec 24 17:53	3° <del>2</del> 31'00	
conjunction	2150 Nov 29 13:19	7° <del>2</del> 14'15	0°05'48	behind sun end	2156 Dec 25 00:23	3° <del>2</del> 31'58	
minimum elong	2150 Nov 29 13:19	7° <del>2</del> 14'15	0°05'49	max. Earth dist.	2156 Dec 25 07:43	3° <del>2</del> 33'04	20.28983 AU
behind sun begin	2150 Nov 29 07:01	7° <del>2</del> 13'18		retrograde	2157 Apr 11 09:34	7° <del>2</del> 39'29	
behind sun end	2150 Nov 29 19:37	7° <del>2</del> 15'12		opposition	2157 Jun 26 22:38	5° <del>2</del> 40'02	0°-17'-28
max. Earth dist.	2150 Nov 29 12:33	7° <del>2</del> 14'09	19.88999 AU	min. Earth dist.	2157 Jun 26 11:31	5° <del>2</del> 41'10	18.32421 AU
retrograde	2151 Mar 16 14:51	11° <del>2</del> 27'38		direct	2157 Sep 12 01:55	3° <del>2</del> 39'39	
opposition	2151 May 31 02:04	9° <del>2</del> 27'28	0°04'30				

conjunction	2157 Dec 29 07:38	7°☾47'45	0°-17'-18	conjunction	2166 Jan 30 22:10	11°☾03'04	0°-36'-49
minimum elong	2157 Dec 29 07:37	7°☾47'45	0°17'19	minimum elong	2166 Jan 30 22:10	11°☾03'04	0°36'51
max. Earth dist.	2157 Dec 29 20:12	7°☾49'38	20.35874 AU	max. Earth dist.	2166 Jan 31 18:33	11°☾06'02	20.83109 AU
retrograde	2158 Apr 15 23:11	11°☾54'57			2166 May 05 01:19	15°☾	
opposition	2158 Jul 01 15:24	9°☾55'40	0°-20'-49	retrograde	2166 May 19 16:07	15°☾05'15	
min. Earth dist.	2158 Jul 01 01:56	9°☾57'02	18.39280 AU		2166 Jun 03 08:03	15°☾	
direct	2158 Sep 16 18:39	7°☾55'42		min. Earth dist.	2166 Aug 04 11:25	13°☾08'38	18.85325 AU
				opposition	2166 Aug 05 08:09	13°☾06'34	0°-41'-40
conjunction	2159 Jan 02 17:22	12°☾02'23	0°-20'-16	direct	2166 Oct 20 23:21	11°☾09'03	
minimum elong	2159 Jan 02 17:22	12°☾02'23	0°20'17		2167 Feb 02 09:59	15°☾	
max. Earth dist.	2159 Jan 03 07:09	12°☾04'27	20.42689 AU				
retrograde	2159 Apr 20 11:54	16°☾08'51		conjunction	2167 Feb 04 03:46	15°☾06'05	0°-38'-28
opposition	2159 Jul 06 07:53	14°☾09'43	0°-24'-1	minimum elong	2167 Feb 04 03:45	15°☾06'05	0°38'29
min. Earth dist.	2159 Jul 05 17:54	14°☾11'08	18.46047 AU	max. Earth dist.	2167 Feb 05 01:02	15°☾09'11	20.87410 AU
direct	2159 Sep 21 08:52	12°☾10'10		retrograde	2167 May 23 23:33	19°☾07'51	
				opposition	2167 Aug 09 19:28	17°☾09'07	0°-43'-22
conjunction	2160 Jan 07 02:27	16°☾15'28	0°-23'-6	min. Earth dist.	2167 Aug 08 23:06	17°☾11'09	18.89472 AU
minimum elong	2160 Jan 07 02:26	16°☾15'28	0°23'06	direct	2167 Oct 25 07:36	15°☾11'48	
max. Earth dist.	2160 Jan 07 17:52	16°☾17'45	20.49379 AU				
retrograde	2160 Apr 24 00:59	20°☾21'12		conjunction	2168 Feb 08 08:54	19°☾07'54	0°-39'-55
opposition	2160 Jul 09 23:34	18°☾22'13	0°-27'-5	minimum elong	2168 Feb 08 08:54	19°☾07'54	0°39'56
min. Earth dist.	2160 Jul 09 07:23	18°☾23'51	18.52639 AU	max. Earth dist.	2168 Feb 09 06:49	19°☾11'05	20.91398 AU
direct	2160 Sep 25 00:02	16°☾23'03		retrograde	2168 May 27 09:15	23°☾09'18	
				min. Earth dist.	2168 Aug 12 07:56	21°☾12'45	18.93302 AU
conjunction	2161 Jan 10 11:00	20°☾27'01	0°-25'-47	opposition	2168 Aug 13 06:00	21°☾10'33	0°-44'-50
minimum elong	2161 Jan 10 11:00	20°☾27'01	0°25'48	direct	2168 Oct 28 17:05	19°☾13'25	
max. Earth dist.	2161 Jan 11 03:27	20°☾29'27	20.55849 AU				
retrograde	2161 Apr 28 11:51	24°☾32'05		conjunction	2169 Feb 11 13:53	23°☾08'42	0°-41'-9
opposition	2161 Jul 14 14:35	22°☾33'13	0°-29'-59	minimum elong	2169 Feb 11 13:53	23°☾08'42	0°41'10
min. Earth dist.	2161 Jul 13 22:25	22°☾34'51	18.58994 AU	max. Earth dist.	2169 Feb 12 12:35	23°☾12'00	20.95059 AU
direct	2161 Sep 29 12:57	20°☾34'26		retrograde	2169 May 31 16:22	27°☾09'48	
				opposition	2169 Aug 17 15:57	25°☾11'03	0°-46'-5
conjunction	2162 Jan 14 19:06	24°☾37'06	0°-28'-20	min. Earth dist.	2169 Aug 16 18:24	25°☾13'11	18.96814 AU
minimum elong	2162 Jan 14 19:06	24°☾37'06	0°28'21	direct	2169 Nov 01 23:56	23°☾14'06	
max. Earth dist.	2162 Jan 15 12:35	24°☾39'42	20.62053 AU				
retrograde	2162 May 03 00:24	28°☾41'31		conjunction	2170 Feb 15 18:37	27°☾08'40	0°-42'-11
min. Earth dist.	2162 Jul 18 10:52	26°☾44'34	18.65031 AU	minimum elong	2170 Feb 15 18:37	27°☾08'40	0°42'12
opposition	2162 Jul 19 04:56	26°☾42'45	0°-32'-43	max. Earth dist.	2170 Feb 16 17:39	27°☾12'00	20.98412 AU
direct	2162 Oct 04 02:37	24°☾44'18			2170 Apr 11 17:03	0°☾	
				retrograde	2170 Jun 05 01:22	1°☾09'31	
conjunction	2163 Jan 19 02:33	28°☾45'44	0°-30'-43		2170 Jul 31 20:21	30°☾	
minimum elong	2163 Jan 19 02:33	28°☾45'44	0°30'44	min. Earth dist.	2170 Aug 21 02:26	29°☾13'05	18.99998 AU
max. Earth dist.	2163 Jan 19 20:50	28°☾48'26	20.67900 AU	opposition	2170 Aug 22 01:26	29°☾10'47	0°-47'-7
	2163 Feb 09 09:12	0°☾		direct	2170 Nov 06 07:50	27°☾14'01	
retrograde	2163 May 07 09:46	2°☾49'33			2171 Jan 31 01:37	0°☾	
opposition	2163 Jul 23 18:53	0°☾50'52	0°-35'-15				
min. Earth dist.	2163 Jul 23 01:04	0°☾52'39	18.70702 AU	conjunction	2171 Feb 19 23:03	1°☾07'58	0°-43'-1
	2163 Aug 14 15:21	30°☾		minimum elong	2171 Feb 19 23:03	1°☾07'58	0°43'03
direct	2163 Oct 08 14:03	28°☾52'42		max. Earth dist.	2171 Feb 20 22:45	1°☾11'23	21.01412 AU
	2163 Nov 29 20:06	0°☾		retrograde	2171 Jun 09 08:35	5°☾08'41	
conjunction	2164 Jan 23 09:38	2°☾52'56	0°-32'-56	opposition	2171 Aug 26 10:43	3°☾09'57	0°-47'-55
minimum elong	2164 Jan 23 09:38	2°☾52'56	0°32'58	min. Earth dist.	2171 Aug 25 12:22	3°☾12'11	19.02821 AU
max. Earth dist.	2164 Jan 24 04:39	2°☾55'44	20.73376 AU	direct	2171 Nov 10 13:32	1°☾13'23	
retrograde	2164 May 10 21:28	6°☾56'10					
opposition	2164 Jul 27 07:57	4°☾57'31	0°-37'-36	conjunction	2172 Feb 24 03:35	5°☾06'47	0°-43'-39
min. Earth dist.	2164 Jul 26 12:26	4°☾59'28	18.75974 AU	minimum elong	2172 Feb 24 03:35	5°☾06'47	0°43'39
direct	2164 Oct 12 02:29	2°☾59'36		max. Earth dist.	2172 Feb 25 03:21	5°☾10'13	21.04053 AU
				retrograde	2172 Jun 12 17:22	9°☾07'24	
conjunction	2165 Jan 26 16:08	6°☾58'42	0°-34'-58	opposition	2172 Aug 29 19:21	7°☾08'41	0°-48'-29
minimum elong	2165 Jan 26 16:08	6°☾58'42	0°34'59	min. Earth dist.	2172 Aug 28 19:57	7°☾11'01	19.05259 AU
max. Earth dist.	2165 Jan 27 11:53	7°☾01'36	20.78436 AU	direct	2172 Nov 13 20:26	5°☾12'17	
retrograde	2165 May 15 05:40	11°☾01'24					
opposition	2165 Jul 31 20:30	9°☾02'44	0°-39'-44	conjunction	2173 Feb 27 08:07	9°☾05'16	0°-44'-4
min. Earth dist.	2165 Jul 31 01:27	9°☾04'38	18.80840 AU	minimum elong	2173 Feb 27 08:07	9°☾05'16	0°44'05
direct	2165 Oct 16 12:13	7°☾05'02		max. Earth dist.	2173 Feb 28 08:11	9°☾08'43	21.06269 AU
				retrograde	2173 Jun 17 00:26	13°☾05'50	
				min. Earth dist.	2173 Sep 02 05:31	11°☾09'22	19.07253 AU

opposition	2173 Sep 03 03:51	11° <del>✕</del> 07'08	0°-48'-49	min. Earth dist.	2181 Oct 04 21:56	12° <del>Υ</del> 53'32	19.04023 AU
direct	2173 Nov 18 01:06	9° <del>✕</del> 10'53		direct	2181 Dec 19 19:15	10° <del>Υ</del> 55'16	
conjunction	2174 Mar 03 12:41	13° <del>✕</del> 03'30	0°-44'-16	conjunction	2182 Apr 04 08:24	14° <del>Υ</del> 47'52	0°-38'-21
minimum elong	2174 Mar 03 12:40	13° <del>✕</del> 03'30	0°44'17	minimum elong	2182 Apr 04 08:24	14° <del>Υ</del> 47'52	0°38'22
max. Earth dist.	2174 Mar 04 12:23	13° <del>✕</del> 06'54	21.08032 AU	max. Earth dist.	2182 Apr 05 02:53	14° <del>Υ</del> 50'30	21.02784 AU
retrograde	2174 Jun 21 09:31	17° <del>✕</del> 04'06		retrograde	2182 Jul 24 03:02	18° <del>Υ</del> 50'11	
opposition	2174 Sep 07 11:58	15° <del>✕</del> 05'24	0°-48'-55	opposition	2182 Oct 09 21:50	16° <del>Υ</del> 50'27	0°-41'-28
min. Earth dist.	2174 Sep 06 13:01	15° <del>✕</del> 07'41	19.08767 AU	min. Earth dist.	2182 Oct 09 04:42	16° <del>Υ</del> 52'11	19.01508 AU
direct	2174 Nov 22 07:36	13° <del>✕</del> 09'16		direct	2182 Dec 24 00:36	14° <del>Υ</del> 53'46	
conjunction	2175 Mar 07 17:28	17° <del>✕</del> 01'37	0°-44'-15	conjunction	2183 Apr 08 15:15	18° <del>Υ</del> 46'47	0°-36'-43
minimum elong	2175 Mar 07 17:28	17° <del>✕</del> 01'37	0°44'17	minimum elong	2183 Apr 08 15:15	18° <del>Υ</del> 46'47	0°36'44
max. Earth dist.	2175 Mar 08 17:08	17° <del>✕</del> 05'01	21.09278 AU	max. Earth dist.	2183 Apr 09 09:19	18° <del>Υ</del> 49'22	21.00090 AU
retrograde	2175 Jun 25 16:30	21° <del>✕</del> 02'17		retrograde	2183 Jul 28 10:33	22° <del>Υ</del> 49'34	
opposition	2175 Sep 11 19:59	19° <del>✕</del> 03'34	0°-48'-47	opposition	2183 Oct 14 04:39	20° <del>Υ</del> 49'41	0°-39'-34
min. Earth dist.	2175 Sep 10 22:26	19° <del>✕</del> 05'43	19.09746 AU	min. Earth dist.	2183 Oct 13 12:57	20° <del>Υ</del> 51'17	18.98644 AU
direct	2175 Nov 26 11:54	17° <del>✕</del> 07'31		direct	2183 Dec 28 04:52	18° <del>Υ</del> 52'52	
conjunction	2176 Mar 10 22:24	20° <del>✕</del> 59'40	0°-44'-2	conjunction	2184 Apr 11 22:34	22° <del>Υ</del> 46'24	0°-34'-54
minimum elong	2176 Mar 10 22:24	20° <del>✕</del> 59'40	0°44'04	minimum elong	2184 Apr 11 22:34	22° <del>Υ</del> 46'24	0°34'55
max. Earth dist.	2176 Mar 11 21:16	21° <del>✕</del> 02'56	21.09982 AU	max. Earth dist.	2184 Apr 12 15:19	22° <del>Υ</del> 48'48	20.97073 AU
retrograde	2176 Jun 29 01:50	25° <del>✕</del> 00'26		retrograde	2184 Jul 31 21:27	26° <del>Υ</del> 49'43	
min. Earth dist.	2176 Sep 14 05:56	23° <del>✕</del> 03'49	19.10152 AU	opposition	2184 Oct 17 11:30	24° <del>Υ</del> 49'43	0°-37'-28
opposition	2176 Sep 15 03:40	23° <del>✕</del> 01'38	0°-48'-26	min. Earth dist.	2184 Oct 16 20:06	24° <del>Υ</del> 51'17	18.95455 AU
direct	2176 Nov 29 18:05	21° <del>✕</del> 05'36		direct	2184 Dec 31 10:43	22° <del>Υ</del> 52'45	
conjunction	2177 Mar 15 03:38	24° <del>✕</del> 57'39	0°-43'-36	conjunction	2185 Apr 16 06:29	26° <del>Υ</del> 46'54	0°-32'-54
minimum elong	2177 Mar 15 03:38	24° <del>✕</del> 57'39	0°43'37	minimum elong	2185 Apr 16 06:29	26° <del>Υ</del> 46'54	0°32'56
max. Earth dist.	2177 Mar 16 02:00	25° <del>✕</del> 00'50	21.10081 AU	max. Earth dist.	2185 Apr 16 22:41	26° <del>Υ</del> 49'13	20.93710 AU
retrograde	2177 Jul 03 08:47	28° <del>✕</del> 58'32			2185 Jun 19 23:32	0° <del>♄</del>	
opposition	2177 Sep 19 11:06	26° <del>✕</del> 59'39	0°-47'-50	retrograde	2185 Aug 05 05:56	0° <del>♄</del> 50'48	
min. Earth dist.	2177 Sep 18 15:01	27° <del>✕</del> 01'40	19.09955 AU		2185 Sep 21 13:31	30° <del>♁</del> <del>Υ</del>	
direct	2177 Dec 03 22:41	25° <del>✕</del> 03'35		opposition	2185 Oct 21 18:30	28° <del>Υ</del> 50'42	0°-35'-11
conjunction	2178 Mar 19 08:56	28° <del>✕</del> 55'34	0°-42'-58	min. Earth dist.	2185 Oct 21 04:42	28° <del>Υ</del> 52'07	18.91920 AU
minimum elong	2178 Mar 19 08:56	28° <del>✕</del> 55'34	0°42'59	direct	2186 Jan 04 14:49	26° <del>Υ</del> 53'36	
max. Earth dist.	2178 Mar 20 06:16	28° <del>✕</del> 58'37	21.09608 AU		2186 Apr 06 10:38	0° <del>♄</del>	
retrograde	2178 Apr 07 09:17	0° <del>Υ</del>		conjunction	2186 Apr 20 14:59	0° <del>♄</del> 48'29	0°-30'-45
opposition	2178 Jul 07 17:48	2° <del>Υ</del> 56'38		minimum elong	2186 Apr 20 14:59	0° <del>♄</del> 48'29	0°30'46
min. Earth dist.	2178 Sep 23 18:20	0° <del>Υ</del> 57'36	0°-47'00	max. Earth dist.	2186 Apr 21 05:35	0° <del>♄</del> 50'34	20.90026 AU
direct	2178 Sep 22 22:13	0° <del>Υ</del> 59'37	19.09195 AU	retrograde	2186 Aug 09 17:33	4° <del>♄</del> 53'02	
	2178 Oct 18 18:46	30° <del>♁</del> <del>✕</del>		opposition	2186 Oct 26 01:44	2° <del>♄</del> 52'50	0°-32'-42
	2178 Dec 08 04:17	29° <del>✕</del> 01'27		min. Earth dist.	2186 Oct 25 12:35	2° <del>♄</del> 54'11	18.88058 AU
	2179 Jan 25 17:05	0° <del>Υ</del>		direct	2187 Jan 08 21:21	0° <del>♄</del> 55'35	
conjunction	2179 Mar 23 14:19	2° <del>Υ</del> 53'27	0°-42'-7	conjunction	2187 Apr 25 00:11	4° <del>♄</del> 51'17	0°-28'-26
minimum elong	2179 Mar 23 14:19	2° <del>Υ</del> 53'27	0°42'07	minimum elong	2187 Apr 25 00:11	4° <del>♄</del> 51'17	0°28'27
max. Earth dist.	2179 Mar 24 11:18	2° <del>Υ</del> 56'26	21.08577 AU	max. Earth dist.	2187 Apr 25 14:03	4° <del>♄</del> 53'16	20.85979 AU
retrograde	2179 Jul 12 00:51	6° <del>Υ</del> 54'45		retrograde	2187 Aug 14 03:35	8° <del>♄</del> 56'32	
min. Earth dist.	2179 Sep 27 06:55	4° <del>Υ</del> 57'25	19.07910 AU	opposition	2187 Oct 30 09:19	6° <del>♄</del> 56'15	0°-30'-4
opposition	2179 Sep 28 01:31	4° <del>Υ</del> 55'32	0°-45'-57	min. Earth dist.	2187 Oct 29 22:01	6° <del>♄</del> 57'25	18.83817 AU
direct	2179 Dec 12 09:16	2° <del>Υ</del> 59'17		direct	2188 Jan 13 02:26	4° <del>♄</del> 58'50	
conjunction	2180 Mar 26 20:05	6° <del>Υ</del> 51'23	0°-41'-3	conjunction	2188 Apr 28 10:16	8° <del>♄</del> 55'25	0°-25'-58
minimum elong	2180 Mar 26 20:05	6° <del>Υ</del> 51'23	0°41'05	minimum elong	2188 Apr 28 10:16	8° <del>♄</del> 55'25	0°25'58
max. Earth dist.	2180 Mar 27 16:02	6° <del>Υ</del> 54'13	21.07068 AU	max. Earth dist.	2188 Apr 28 21:59	8° <del>♄</del> 57'06	20.81554 AU
retrograde	2180 Jul 15 10:04	10° <del>Υ</del> 52'57		retrograde	2188 Aug 17 15:47	13° <del>♄</del> 01'25	
opposition	2180 Oct 01 08:15	8° <del>Υ</del> 53'33	0°-44'-40	opposition	2188 Nov 02 17:00	11° <del>♄</del> 01'03	0°-27'-15
min. Earth dist.	2180 Sep 30 13:40	8° <del>Υ</del> 55'25	19.06176 AU	min. Earth dist.	2188 Nov 02 06:52	11° <del>♄</del> 02'05	18.79183 AU
direct	2180 Dec 15 14:26	6° <del>Υ</del> 57'09		direct	2189 Jan 16 09:30	9° <del>♄</del> 03'24	
conjunction	2181 Mar 31 02:09	10° <del>Υ</del> 49'28	0°-39'-48	conjunction	2189 May 02 21:12	13° <del>♄</del> 00'59	0°-23'-21
minimum elong	2181 Mar 31 02:09	10° <del>Υ</del> 49'28	0°39'49	minimum elong	2189 May 02 21:12	13° <del>♄</del> 00'59	0°23'21
max. Earth dist.	2181 Mar 31 21:41	10° <del>Υ</del> 52'15	21.05115 AU	max. Earth dist.	2189 May 03 07:45	13° <del>♄</del> 02'30	20.76699 AU
retrograde	2181 Jul 19 17:03	14° <del>Υ</del> 51'22			2189 Jun 07 17:34	15° <del>♄</del>	
opposition	2181 Oct 05 15:05	12° <del>Υ</del> 51'48	0°-43'-10	retrograde	2189 Aug 22 03:04	17° <del>♄</del> 07'44	



opposition	2189 Nov 07 01:16	15°♄07'14	0°-24'-17	behind sun begin	2196 Jun 01 16:05	12°♄18'59	
min. Earth dist.	2189 Nov 06 17:07	15°♄08'05	18.74108 AU	behind sun end	2196 Jun 02 05:35	12°♄20'55	
	2189 Nov 09 23:24	15°♄		max. Earth dist.	2196 Jun 01 20:00	12°♄19'36	20.33402 AU
direct	2190 Jan 20 16:25	13°♄09'22		retrograde	2196 Sep 21 00:02	16°♄32'28	
	2190 Mar 29 12:55	15°♄		opposition	2196 Dec 05 21:05	14°♄30'37	0°00'-20
				min. Earth dist.	2196 Dec 05 23:31	14°♄30'21	18.29999 AU
conjunction	2190 May 07 08:39	17°♄07'57	0°-20'-35	asc. node	2197 Jan 09 21:30	13°♄09'28	
minimum elong	2190 May 07 08:39	17°♄07'57	0°20'37	direct	2197 Feb 18 11:59	12°♄30'04	
max. Earth dist.	2190 May 07 16:40	17°♄09'06	20.71422 AU				
retrograde	2190 Aug 26 15:26	21°♄15'30		conjunction	2197 Jun 06 16:13	16°♄37'32	0°01'22
opposition	2190 Nov 11 09:51	19°♄14'50	0°-21'-10	minimum elong	2197 Jun 06 16:13	16°♄37'32	0°01'22
min. Earth dist.	2190 Nov 11 03:01	19°♄15'32	18.68617 AU	behind sun begin	2197 Jun 06 09:28	16°♄36'34	
direct	2191 Jan 25 00:14	17°♄16'38		behind sun end	2197 Jun 06 22:58	16°♄38'30	
				max. Earth dist.	2197 Jun 06 12:53	16°♄37'06	20.26634 AU
conjunction	2191 May 11 21:08	21°♄16'20	0°-17'-43	retrograde	2197 Sep 25 15:51	20°♄50'55	
minimum elong	2191 May 11 21:09	21°♄16'20	0°17'44	opposition	2197 Dec 10 08:49	18°♄48'57	0°03'19
max. Earth dist.	2191 May 12 03:58	21°♄17'18	20.65728 AU	min. Earth dist.	2197 Dec 10 12:18	18°♄48'34	18.23238 AU
retrograde	2191 Aug 31 03:42	25°♄24'39		direct	2198 Feb 22 23:54	16°♄48'01	
opposition	2191 Nov 15 18:42	23°♄23'48	0°-17'-55				
min. Earth dist.	2191 Nov 15 13:48	23°♄24'19	18.62730 AU	conjunction	2198 Jun 11 10:13	20°♄56'58	0°04'42
direct	2192 Jan 29 08:58	21°♄25'16		minimum elong	2198 Jun 11 10:13	20°♄56'58	0°04'43
				behind sun begin	2198 Jun 11 03:36	20°♄56'01	
conjunction	2192 May 15 10:18	25°♄26'06	0°-14'-44	behind sun end	2198 Jun 11 16:49	20°♄57'55	
minimum elong	2192 May 15 10:18	25°♄26'06	0°14'46	max. Earth dist.	2198 Jun 11 04:13	20°♄56'07	20.19900 AU
behind sun begin	2192 May 15 07:47	25°♄25'44		retrograde	2198 Sep 30 08:31	25°♄11'18	
behind sun end	2192 May 15 12:49	25°♄26'27		opposition	2198 Dec 14 21:14	23°♄09'11	0°07'00
max. Earth dist.	2192 May 15 14:24	25°♄26'41	20.59688 AU	min. Earth dist.	2198 Dec 15 02:21	23°♄08'39	18.16533 AU
retrograde	2192 Sep 03 16:14	29°♄35'13		direct	2199 Feb 27 12:16	21°♄07'54	
opposition	2192 Nov 19 03:54	27°♄34'09	0°-14'-34				
min. Earth dist.	2192 Nov 19 00:26	27°♄34'31	18.56535 AU	conjunction	2199 Jun 16 05:33	25°♄18'24	0°08'00
direct	2193 Feb 01 17:55	25°♄35'14		minimum elong	2199 Jun 16 05:33	25°♄18'24	0°07'59
				behind sun begin	2199 Jun 15 23:31	25°♄17'32	
conjunction	2193 May 20 00:13	29°♄37'16	0°-11'-39	behind sun end	2199 Jun 16 11:34	25°♄19'16	
minimum elong	2193 May 20 00:13	29°♄37'16	0°11'40	max. Earth dist.	2199 Jun 15 23:05	25°♄17'28	20.13219 AU
behind sun begin	2193 May 19 19:30	29°♄36'36		retrograde	2199 Oct 05 02:33	29°♄33'38	
behind sun end	2193 May 20 04:55	29°♄37'56		opposition	2199 Dec 19 10:09	27°♄31'27	0°10'40
max. Earth dist.	2193 May 20 03:23	29°♄37'43	20.53352 AU	min. Earth dist.	2199 Dec 19 16:20	27°♄30'48	18.09878 AU
	2193 May 26 12:28	0°♄		direct	2200 Mar 04 01:54	25°♄29'49	
retrograde	2193 Sep 08 05:11	3°♄47'12					
opposition	2193 Nov 23 13:30	1°♄45'56	0°-11'-6	conjunction	2200 Jun 21 01:42	29°♄41'55	0°11'16
min. Earth dist.	2193 Nov 23 11:39	1°♄46'08	18.50083 AU	minimum elong	2200 Jun 21 01:42	29°♄41'55	0°11'16
	2194 Jan 14 10:30	30°♄		behind sun begin	2200 Jun 20 20:48	29°♄41'12	
direct	2194 Feb 06 03:47	29°♄46'38		behind sun end	2200 Jun 21 06:35	29°♄42'37	
	2194 Feb 28 16:00	0°♄		max. Earth dist.	2200 Jun 20 16:21	29°♄40'32	20.06598 AU
					2200 Jun 26 03:05	0°♄	
conjunction	2194 May 24 14:51	3°♄49'56	0°-8'-30	retrograde	2200 Oct 09 20:29	3°♄58'04	
minimum elong	2194 May 24 14:51	3°♄49'56	0°08'31	opposition	2200 Dec 23 23:59	1°♄55'50	0°14'18
behind sun begin	2194 May 24 09:00	3°♄49'06		min. Earth dist.	2200 Dec 24 08:09	1°♄54'58	18.03291 AU
behind sun end	2194 May 24 20:43	3°♄50'45			2201 Feb 21 11:23	30°♄	
max. Earth dist.	2194 May 24 15:24	3°♄50'00	20.46820 AU	direct	2201 Mar 08 15:32	29°♄53'52	
retrograde	2194 Sep 12 18:50	8°♄00'42			2201 Mar 23 18:17	0°♄	
opposition	2194 Nov 27 23:31	5°♄59'13	0°-7'-34				
min. Earth dist.	2194 Nov 27 23:05	5°♄59'16	18.43478 AU	conjunction	2201 Jun 25 22:50	4°♄07'34	0°14'31
direct	2195 Feb 10 13:55	3°♄59'29		minimum elong	2201 Jun 25 22:50	4°♄07'34	0°14'31
				behind sun begin	2201 Jun 25 20:07	4°♄07'10	
conjunction	2195 May 29 06:27	8°♄04'07	0°-5'-18	behind sun end	2201 Jun 26 01:33	4°♄07'57	
minimum elong	2195 May 29 06:27	8°♄04'07	0°05'19	max. Earth dist.	2201 Jun 25 12:55	4°♄06'05	20.00025 AU
behind sun begin	2195 May 28 23:56	8°♄03'11		retrograde	2201 Oct 14 16:34	8°♄24'38	
behind sun end	2195 May 29 12:58	8°♄05'03		opposition	2201 Dec 28 14:30	6°♄22'21	0°17'53
max. Earth dist.	2195 May 29 06:19	8°♄04'06	20.40147 AU	min. Earth dist.	2201 Dec 28 23:39	6°♄21'22	17.96736 AU
retrograde	2195 Sep 17 08:53	12°♄15'45		direct	2202 Mar 13 07:22	4°♄20'03	
opposition	2195 Dec 02 10:04	10°♄14'05	0°-3'-58				
min. Earth dist.	2195 Dec 02 11:00	10°♄13'59	18.36756 AU	conjunction	2202 Jun 30 20:54	8°♄35'21	0°17'42
direct	2196 Feb 15 00:42	8°♄13'56		minimum elong	2202 Jun 30 20:54	8°♄35'21	0°17'42
				max. Earth dist.	2202 Jun 30 07:58	8°♄33'25	19.93487 AU
conjunction	2196 Jun 01 22:49	12°♄19'57	0°-2'-1	retrograde	2202 Oct 19 11:22	12°♄53'19	
minimum elong	2196 Jun 01 22:50	12°♄19'57	0°02'02	opposition	2203 Jan 02 05:49	10°♄50'58	0°21'24

min. Earth dist.	2203 Jan 02 17:14	10° <del>5</del> 49'44	17.90227 AU	minimum elong	2210 Aug 08 08:10	15° <del>0</del> 22'37	0°38'20
direct	2203 Mar 17 22:48	8° <del>5</del> 48'16		retrograde	2210 Nov 25 16:12	19° <del>0</del> 45'52	
				opposition	2211 Feb 07 09:43	17° <del>0</del> 42'52	0°43'40
conjunction	2203 Jul 05 20:04	13° <del>5</del> 05'11	0°20'49	min. Earth dist.	2211 Feb 08 05:38	17° <del>0</del> 40'41	17.44748 AU
minimum elong	2203 Jul 05 20:04	13° <del>5</del> 05'11	0°20'49	direct	2211 Apr 23 18:17	15° <del>0</del> 37'17	
max. Earth dist.	2203 Jul 05 06:16	13° <del>5</del> 03'06	19.86990 AU				
retrograde	2203 Oct 24 08:57	17° <del>5</del> 23'59		conjunction	2211 Aug 13 11:55	20° <del>0</del> 05'12	0°40'00
opposition	2204 Jan 06 21:52	15° <del>5</del> 21'33	0°24'49	minimum elong	2211 Aug 13 11:55	20° <del>0</del> 05'12	0°39'59
min. Earth dist.	2204 Jan 07 10:05	15° <del>5</del> 20'14	17.83751 AU	max. Earth dist.	2211 Aug 12 12:07	20° <del>0</del> 01'30	19.42717 AU
direct	2204 Mar 21 16:37	13° <del>5</del> 18'30		retrograde	2211 Nov 30 16:40	24° <del>0</del> 28'51	
				opposition	2212 Feb 12 07:11	22° <del>0</del> 25'52	0°45'23
conjunction	2204 Jul 09 19:53	17° <del>5</del> 36'58	0°23'49	min. Earth dist.	2212 Feb 13 02:31	22° <del>0</del> 23'45	17.40885 AU
minimum elong	2204 Jul 09 19:53	17° <del>5</del> 36'58	0°23'49	direct	2212 Apr 27 19:17	20° <del>0</del> 20'04	
max. Earth dist.	2204 Jul 09 03:14	17° <del>5</del> 34'27	19.80544 AU				
retrograde	2204 Oct 28 04:37	21° <del>5</del> 56'33		conjunction	2212 Aug 17 15:59	24° <del>0</del> 49'01	0°41'23
opposition	2205 Jan 10 14:41	19° <del>5</del> 54'02	0°28'06	minimum elong	2212 Aug 17 15:59	24° <del>0</del> 49'01	0°41'23
min. Earth dist.	2205 Jan 11 05:12	19° <del>5</del> 52'28	17.77366 AU	max. Earth dist.	2212 Aug 16 16:35	24° <del>0</del> 45'23	19.39122 AU
direct	2205 Mar 26 10:08	17° <del>5</del> 50'34		retrograde	2212 Dec 04 15:50	29° <del>0</del> 13'02	
				opposition	2213 Feb 16 05:27	27° <del>0</del> 10'06	0°46'47
conjunction	2205 Jul 14 20:31	22° <del>5</del> 10'35	0°26'41	min. Earth dist.	2213 Feb 17 01:50	27° <del>0</del> 07'52	17.37576 AU
minimum elong	2205 Jul 14 20:31	22° <del>5</del> 10'35	0°26'42	direct	2213 May 02 18:52	25° <del>0</del> 04'09	
max. Earth dist.	2205 Jul 14 03:04	22° <del>5</del> 07'56	19.74225 AU				
retrograde	2205 Nov 02 02:52	26° <del>5</del> 30'55		conjunction	2213 Aug 22 20:17	29° <del>0</del> 34'03	0°42'30
opposition	2206 Jan 15 08:07	24° <del>5</del> 28'18	0°31'13	minimum elong	2213 Aug 22 20:16	29° <del>0</del> 34'03	0°42'31
min. Earth dist.	2206 Jan 15 23:01	24° <del>5</del> 26'41	17.71131 AU	max. Earth dist.	2213 Aug 21 19:48	29° <del>0</del> 30'13	19.36099 AU
direct	2206 Mar 31 05:36	22° <del>5</del> 24'27			2213 Aug 29 18:40	0° <del>0</del> 00'00	
				retrograde	2213 Dec 09 17:40	3° <del>0</del> 05'58'20	
conjunction	2206 Jul 19 21:41	26° <del>5</del> 45'56	0°29'25	opposition	2214 Feb 21 04:07	1° <del>0</del> 05'55'29	0°47'53
minimum elong	2206 Jul 19 21:41	26° <del>5</del> 45'56	0°29'25	min. Earth dist.	2214 Feb 22 00:03	1° <del>0</del> 05'31'18	17.34827 AU
max. Earth dist.	2206 Jul 19 02:05	26° <del>5</del> 42'56	19.68088 AU		2214 Apr 17 20:00	30° <del>0</del> 00'00	
	2206 Sep 17 04:57	0° <del>0</del> 00'00		direct	2214 May 07 20:39	29° <del>0</del> 04'49'24	
retrograde	2206 Nov 06 23:17	1° <del>0</del> 06'58			2214 May 27 16:10	0° <del>0</del> 00'00	
	2206 Dec 28 22:29	30° <del>0</del> 00'00		max. Earth dist.	2214 Aug 27 01:20	4° <del>0</del> 00'16'27	19.33604 AU
opposition	2207 Jan 20 02:23	29° <del>0</del> 04'15	0°34'10				
min. Earth dist.	2207 Jan 20 19:25	29° <del>0</del> 02'23	17.65123 AU	conjunction	2214 Aug 28 00:58	4° <del>0</del> 00'20'09	0°43'20
direct	2207 Apr 05 00:58	26° <del>5</del> 59'59		minimum elong	2214 Aug 28 00:58	4° <del>0</del> 00'20'09	0°43'20
	2207 Jul 02 01:27	0° <del>0</del> 00'00		retrograde	2214 Dec 14 18:00	8° <del>0</del> 00'44'38	
				opposition	2215 Feb 26 03:37	6° <del>0</del> 00'41'54	0°48'40
conjunction	2207 Jul 24 23:39	1° <del>0</del> 22'54	0°31'57	min. Earth dist.	2215 Feb 27 00:23	6° <del>0</del> 00'39'37	17.32584 AU
minimum elong	2207 Jul 24 23:39	1° <del>0</del> 22'54	0°31'57	direct	2215 May 12 21:11	4° <del>0</del> 00'35'43	
max. Earth dist.	2207 Jul 24 03:13	1° <del>0</del> 19'47	19.62216 AU	max. Earth dist.	2215 Sep 01 04:48	9° <del>0</del> 00'03'15	19.31609 AU
retrograde	2207 Nov 11 22:03	5° <del>0</del> 04'43'34					
opposition	2208 Jan 24 21:03	3° <del>0</del> 04'14'5	0°36'54	conjunction	2215 Sep 02 05:41	9° <del>0</del> 00'07'10	0°43'52
min. Earth dist.	2208 Jan 25 14:09	3° <del>0</del> 03'53'5	17.59406 AU	minimum elong	2215 Sep 02 05:41	9° <del>0</del> 00'07'10	0°43'53
direct	2208 Apr 08 22:37	1° <del>0</del> 03'7'08		retrograde	2215 Dec 19 19:58	13° <del>0</del> 00'31'46	
max. Earth dist.	2208 Jul 28 04:21	5° <del>0</del> 05'8'04	19.56664 AU	opposition	2216 Mar 02 03:32	11° <del>0</del> 00'29'07	0°49'06
				min. Earth dist.	2216 Mar 03 00:05	11° <del>0</del> 00'26'52	17.30837 AU
conjunction	2208 Jul 29 02:06	6° <del>0</del> 01'02'5	0°34'18	direct	2216 May 17 00:01	9° <del>0</del> 00'22'51	
minimum elong	2208 Jul 29 02:06	6° <del>0</del> 01'02'5	0°34'19	max. Earth dist.	2216 Sep 05 10:51	13° <del>0</del> 00'51'08	19.30091 AU
retrograde	2208 Nov 15 18:58	10° <del>0</del> 023'40					
opposition	2209 Jan 28 16:44	8° <del>0</del> 020'45	0°39'25	conjunction	2216 Sep 06 10:36	13° <del>0</del> 00'54'52	0°44'06
min. Earth dist.	2209 Jan 29 11:36	8° <del>0</del> 018'41	17.54061 AU	minimum elong	2216 Sep 06 10:36	13° <del>0</del> 00'54'52	0°44'07
direct	2209 Apr 13 19:51	6° <del>0</del> 015'46		retrograde	2216 Dec 23 20:26	18° <del>0</del> 00'19'29	
max. Earth dist.	2209 Aug 02 06:22	10° <del>0</del> 037'53	19.51530 AU	opposition	2217 Mar 07 04:09	16° <del>0</del> 00'16'56	0°49'12
				min. Earth dist.	2217 Mar 08 00:56	16° <del>0</del> 00'14'39	17.29552 AU
conjunction	2209 Aug 03 04:48	10° <del>0</del> 041'20	0°36'26	direct	2217 May 22 02:12	14° <del>0</del> 00'10'37	
minimum elong	2209 Aug 03 04:48	10° <del>0</del> 041'20	0°36'26				
	2209 Nov 08 14:01	15° <del>0</del> 00'00		conjunction	2217 Sep 11 15:06	18° <del>0</del> 00'42'59	0°44'02
retrograde	2209 Nov 20 18:16	15° <del>0</del> 004'07		minimum elong	2217 Sep 11 15:06	18° <del>0</del> 00'42'59	0°44'01
	2209 Dec 02 23:42	15° <del>0</del> 000'00		max. Earth dist.	2217 Sep 10 14:21	18° <del>0</del> 00'39'05	19.29044 AU
opposition	2210 Feb 02 12:51	13° <del>0</del> 001'09	0°41'41	retrograde	2217 Dec 28 21:32	23° <del>0</del> 00'07'33	
min. Earth dist.	2210 Feb 03 07:20	12° <del>0</del> 005'07	17.49156 AU	opposition	2218 Mar 12 05:03	21° <del>0</del> 00'05'03	0°48'57
direct	2210 Apr 18 19:24	10° <del>0</del> 005'51		min. Earth dist.	2218 Mar 13 01:42	21° <del>0</del> 00'02'48	17.28745 AU
	2210 Aug 02 05:52	15° <del>0</del> 00'00		direct	2218 May 27 05:59	18° <del>0</del> 00'58'41	
max. Earth dist.	2210 Aug 07 09:19	15° <del>0</del> 019'05	19.46855 AU				
				conjunction	2218 Sep 16 19:44	23° <del>0</del> 00'31'18	0°43'39
conjunction	2210 Aug 08 08:10	15° <del>0</del> 022'37	0°38'20	minimum elong	2218 Sep 16 19:44	23° <del>0</del> 00'31'18	0°43'39

max. Earth dist.	2218 Sep 15 20:17	23° $\mathring{M}$ 27'36	19.28470 AU	conjunction	2226 Oct 25 12:40	1° $\mathring{M}$ .39'14	0°30'22
retrograde	2219 Jan 02 21:50	27° $\mathring{M}$ 55'41		minimum elong	2226 Oct 25 12:40	1° $\mathring{M}$ .39'14	0°30'22
opposition	2219 Mar 17 06:11	25° $\mathring{M}$ 53'16	0°48'21	max. Earth dist.	2226 Oct 24 22:31	1° $\mathring{M}$ .37'01	19.43513 AU
min. Earth dist.	2219 Mar 18 02:31	25° $\mathring{M}$ 51'02	17.28401 AU	retrograde	2227 Feb 09 16:27	5° $\mathring{M}$ .59'38	
direct	2219 Jun 01 10:11	23° $\mathring{M}$ 46'52		opposition	2227 Apr 24 18:45	3° $\mathring{M}$ .58'04	0°32'22
				min. Earth dist.	2227 Apr 25 05:47	3° $\mathring{M}$ .56'53	17.45697 AU
conjunction	2219 Sep 21 23:56	28° $\mathring{M}$ 19'33	0°42'58	direct	2227 Jul 10 17:52	1° $\mathring{M}$ .52'41	
minimum elong	2219 Sep 21 23:56	28° $\mathring{M}$ 19'33	0°42'57				
max. Earth dist.	2219 Sep 21 00:01	28° $\mathring{M}$ 15'47	19.28375 AU	conjunction	2227 Oct 30 11:42	6° $\mathring{M}$ .20'57	0°27'39
	2219 Oct 19 03:14	0° $\mathring{A}$		minimum elong	2227 Oct 30 11:42	6° $\mathring{M}$ .20'57	0°27'38
retrograde	2220 Jan 07 21:46	2° $\mathring{A}$ 43'42		max. Earth dist.	2227 Oct 30 00:09	6° $\mathring{M}$ .19'08	19.47993 AU
opposition	2220 Mar 21 07:43	0° $\mathring{A}$ 41'19	0°47'25	retrograde	2228 Feb 14 14:08	10° $\mathring{M}$ .40'36	
min. Earth dist.	2220 Mar 22 03:56	0° $\mathring{A}$ 39'07	17.28564 AU	opposition	2228 Apr 28 20:02	8° $\mathring{M}$ .39'15	0°29'14
	2220 Apr 06 09:58	30° $\mathring{R}$ $\mathring{M}$		min. Earth dist.	2228 Apr 29 06:30	8° $\mathring{M}$ .38'08	17.50407 AU
direct	2220 Jun 05 14:19	28° $\mathring{M}$ 34'55		direct	2228 Jul 14 19:20	6° $\mathring{M}$ .34'14	
	2220 Aug 02 15:04	0° $\mathring{A}$					
max. Earth dist.	2220 Sep 25 05:17	3° $\mathring{A}$ 04'00	19.28799 AU	conjunction	2228 Nov 03 09:39	11° $\mathring{M}$ .01'24	0°24'46
				minimum elong	2228 Nov 03 09:39	11° $\mathring{M}$ .01'24	0°24'46
conjunction	2220 Sep 26 03:37	3° $\mathring{A}$ 07'31	0°41'58	max. Earth dist.	2228 Nov 02 22:59	10° $\mathring{M}$ .59'44	19.52928 AU
minimum elong	2220 Sep 26 03:37	3° $\mathring{A}$ 07'31	0°41'58		2229 Jan 22 09:00	15° $\mathring{M}$ .	
retrograde	2221 Jan 11 22:08	7° $\mathring{A}$ 31'19		retrograde	2229 Feb 18 12:24	15° $\mathring{M}$ .20'18	
opposition	2221 Mar 26 09:21	5° $\mathring{A}$ 29'00	0°46'09		2229 Mar 18 03:27	15° $\mathring{R}$ $\mathring{M}$ .	
min. Earth dist.	2221 Mar 27 04:24	5° $\mathring{A}$ 26'55	17.29240 AU	opposition	2229 May 03 20:50	13° $\mathring{M}$ .19'09	0°25'56
direct	2221 Jun 10 19:42	3° $\mathring{A}$ 22'36		min. Earth dist.	2229 May 04 04:50	13° $\mathring{M}$ .18'18	17.55532 AU
max. Earth dist.	2221 Sep 30 08:56	7° $\mathring{A}$ 51'31	19.29753 AU	direct	2229 Jul 19 21:43	11° $\mathring{M}$ .14'29	
					2229 Oct 28 11:33	15° $\mathring{M}$ .	
conjunction	2221 Oct 01 06:49	7° $\mathring{A}$ 54'58	0°40'41				
minimum elong	2221 Oct 01 06:49	7° $\mathring{A}$ 54'58	0°40'41	conjunction	2229 Nov 08 07:05	15° $\mathring{M}$ .40'29	0°21'44
retrograde	2222 Jan 16 20:58	12° $\mathring{A}$ 18'21		minimum elong	2229 Nov 08 07:05	15° $\mathring{M}$ .40'29	0°21'43
opposition	2222 Mar 31 10:59	10° $\mathring{A}$ 16'05	0°44'33	max. Earth dist.	2229 Nov 07 23:06	15° $\mathring{M}$ .39'14	19.58227 AU
min. Earth dist.	2222 Apr 01 05:55	10° $\mathring{A}$ 14'02	17.30482 AU	retrograde	2230 Feb 23 08:47	19° $\mathring{M}$ .58'32	
direct	2222 Jun 15 23:31	8° $\mathring{A}$ 09'43		opposition	2230 May 08 21:19	17° $\mathring{M}$ .57'36	0°22'28
				min. Earth dist.	2230 May 09 04:43	17° $\mathring{M}$ .56'49	17.60984 AU
conjunction	2222 Oct 06 09:28	12° $\mathring{A}$ 41'42	0°39'07	direct	2230 Jul 24 23:30	15° $\mathring{M}$ .53'17	
minimum elong	2222 Oct 06 09:28	12° $\mathring{A}$ 41'42	0°39'07				
max. Earth dist.	2222 Oct 05 13:06	12° $\mathring{A}$ 38'29	19.31288 AU	conjunction	2230 Nov 13 03:32	20° $\mathring{M}$ .18'01	0°18'34
retrograde	2223 Jan 21 21:09	17° $\mathring{A}$ 04'35		minimum elong	2230 Nov 13 03:32	20° $\mathring{M}$ .18'01	0°18'34
opposition	2223 Apr 05 12:40	15° $\mathring{A}$ 02'24	0°42'39	max. Earth dist.	2230 Nov 12 20:05	20° $\mathring{M}$ .16'52	19.63830 AU
min. Earth dist.	2223 Apr 06 05:44	15° $\mathring{A}$ 00'33	17.32298 AU	retrograde	2231 Feb 28 05:09	24° $\mathring{M}$ .35'13	
direct	2223 Jun 21 05:11	12° $\mathring{A}$ 56'07		opposition	2231 May 13 21:27	22° $\mathring{M}$ .34'27	0°18'52
				min. Earth dist.	2231 May 14 02:35	22° $\mathring{M}$ .33'55	17.66713 AU
conjunction	2223 Oct 11 11:22	17° $\mathring{A}$ 27'35	0°37'17	direct	2231 Jul 30 01:08	20° $\mathring{M}$ .30'30	
minimum elong	2223 Oct 11 11:22	17° $\mathring{A}$ 27'35	0°37'17				
max. Earth dist.	2223 Oct 10 16:25	17° $\mathring{A}$ 24'36	19.33408 AU	conjunction	2231 Nov 17 23:07	24° $\mathring{M}$ .53'52	0°15'18
retrograde	2224 Jan 26 19:11	21° $\mathring{A}$ 49'55		minimum elong	2231 Nov 17 23:08	24° $\mathring{M}$ .53'52	0°15'18
opposition	2224 Apr 09 14:30	19° $\mathring{A}$ 47'49	0°40'27	behind sun begin	2231 Nov 17 20:56	24° $\mathring{M}$ .53'32	
min. Earth dist.	2224 Apr 10 07:07	19° $\mathring{A}$ 46'02	17.34736 AU	behind sun end	2231 Nov 18 01:19	24° $\mathring{M}$ .54'12	
direct	2224 Jun 25 08:13	17° $\mathring{A}$ 41'41		max. Earth dist.	2231 Nov 17 18:26	24° $\mathring{M}$ .53'09	19.69667 AU
				retrograde	2232 Mar 04 00:16	29° $\mathring{M}$ .10'10	
conjunction	2224 Oct 15 12:32	22° $\mathring{A}$ 12'30	0°35'12	opposition	2232 May 17 21:15	27° $\mathring{M}$ .09'34	0°15'11
minimum elong	2224 Oct 15 12:32	22° $\mathring{A}$ 12'30	0°35'11	min. Earth dist.	2232 May 18 01:27	27° $\mathring{M}$ .09'08	17.72644 AU
max. Earth dist.	2224 Oct 14 19:04	22° $\mathring{A}$ 09'45	19.36169 AU	direct	2232 Aug 03 02:39	25° $\mathring{M}$ .05'58	
retrograde	2225 Jan 30 19:11	26° $\mathring{A}$ 34'14					
opposition	2225 Apr 14 16:01	24° $\mathring{A}$ 32'16	0°38'00	conjunction	2232 Nov 21 17:42	29° $\mathring{M}$ .27'54	0°11'58
min. Earth dist.	2225 Apr 15 06:08	24° $\mathring{A}$ 30'45	17.37801 AU	minimum elong	2232 Nov 21 17:43	29° $\mathring{M}$ .27'54	0°11'58
direct	2225 Jun 30 12:44	22° $\mathring{A}$ 26'20		behind sun begin	2232 Nov 21 13:07	29° $\mathring{M}$ .27'12	
				behind sun end	2232 Nov 21 22:18	29° $\mathring{M}$ .28'35	
conjunction	2225 Oct 20 12:58	26° $\mathring{A}$ 56'24	0°32'53	max. Earth dist.	2232 Nov 21 13:31	29° $\mathring{M}$ .27'16	19.75695 AU
minimum elong	2225 Oct 20 12:59	26° $\mathring{A}$ 56'24	0°32'53		2232 Nov 30 08:53	0° $\mathring{A}$	
max. Earth dist.	2225 Oct 19 21:40	26° $\mathring{A}$ 53'59	19.39545 AU	retrograde	2233 Mar 08 18:42	3° $\mathring{A}$ 43'16	
	2225 Dec 13 01:19	0° $\mathring{M}$ .		opposition	2233 May 22 20:16	1° $\mathring{A}$ 42'48	0°11'25
retrograde	2226 Feb 04 17:05	1° $\mathring{M}$ .17'29		min. Earth dist.	2233 May 22 22:28	1° $\mathring{A}$ 42'34	17.78756 AU
	2226 Apr 02 03:09	30° $\mathring{R}$ $\mathring{A}$			2233 Jul 10 08:44	30° $\mathring{R}$ $\mathring{M}$ .	
opposition	2226 Apr 19 17:36	29° $\mathring{A}$ 15'42	0°35'18	direct	2233 Aug 08 02:43	29° $\mathring{M}$ .39'31	
min. Earth dist.	2226 Apr 20 07:11	29° $\mathring{A}$ 14'15	17.41473 AU		2233 Sep 05 06:40	0° $\mathring{A}$	
direct	2226 Jul 05 14:43	27° $\mathring{A}$ 10'01					
	2226 Sep 28 14:59	0° $\mathring{M}$ .		conjunction	2233 Nov 26 11:29	3° $\mathring{A}$ 59'58	0°08'35

minimum elong	2233 Nov 26 11:29	3°♂59'58	0°08'35	max. Earth dist.	2239 Dec 23 10:15	0°♂29'36	20.21809 AU
behind sun begin	2233 Nov 26 05:44	3°♂59'06		retrograde	2240 Apr 08 10:10	4°♂36'58	
behind sun end	2233 Nov 26 17:15	4°♂00'50		opposition	2240 Jun 23 19:21	2°♂37'20	0°-14'-44
max. Earth dist.	2233 Nov 26 09:59	3°♂59'45	19.81876 AU	min. Earth dist.	2240 Jun 23 08:59	2°♂38'23	18.25299 AU
retrograde	2234 Mar 13 12:15	8°♂14'22		direct	2240 Sep 09 01:33	0°♂36'30	
opposition	2234 May 27 18:48	6°♂14'02	0°07'36				
min. Earth dist.	2234 May 27 19:46	6°♂13'56	17.84990 AU	conjunction	2240 Dec 26 11:53	4°♂46'04	0°-14'-53
direct	2234 Aug 13 02:31	4°♂11'04		minimum elong	2240 Dec 26 11:53	4°♂46'04	0°14'53
				behind sun begin	2240 Dec 26 09:09	4°♂45'40	
conjunction	2234 Dec 01 04:04	8°♂29'58	0°05'10	behind sun end	2240 Dec 26 14:37	4°♂46'28	
minimum elong	2234 Dec 01 04:03	8°♂29'58	0°05'09	max. Earth dist.	2240 Dec 26 22:34	4°♂47'40	20.28832 AU
behind sun begin	2234 Nov 30 21:40	8°♂29'00		retrograde	2241 Apr 12 23:25	8°♂54'03	
behind sun end	2234 Dec 01 10:26	8°♂30'56		opposition	2241 Jun 28 12:56	6°♂54'35	0°-18'-10
max. Earth dist.	2234 Dec 01 03:12	8°♂29'52	19.88179 AU	min. Earth dist.	2241 Jun 28 01:39	6°♂55'44	18.32328 AU
retrograde	2235 Mar 18 05:21	12°♂43'24		direct	2241 Sep 13 16:22	4°♂54'10	
opposition	2235 Jun 01 16:40	10°♂43'09	0°03'47				
min. Earth dist.	2235 Jun 01 15:47	10°♂43'14	17.91363 AU	conjunction	2241 Dec 30 22:25	9°♂02'18	0°-17'-56
direct	2235 Aug 18 00:31	8°♂40'29		minimum elong	2241 Dec 30 22:25	9°♂02'18	0°17'57
				max. Earth dist.	2241 Dec 31 11:11	9°♂04'13	20.35833 AU
conjunction	2235 Dec 05 19:45	12°♂57'48	0°01'43	retrograde	2242 Apr 17 13:47	13°♂09'29	
minimum elong	2235 Dec 05 19:46	12°♂57'49	0°01'43	opposition	2242 Jul 03 05:52	11°♂10'13	0°-21'-30
behind sun begin	2235 Dec 05 13:12	12°♂56'50		min. Earth dist.	2242 Jul 02 16:27	11°♂11'34	18.39277 AU
behind sun end	2235 Dec 06 02:20	12°♂58'47		direct	2242 Sep 18 09:23	9°♂10'15	
max. Earth dist.	2235 Dec 05 21:46	12°♂58'03	19.94621 AU				
retrograde	2236 Mar 21 21:36	17°♂10'16		conjunction	2243 Jan 04 08:05	13°♂16'57	0°-20'-52
desc. node	2236 Jun 01 20:28	15°♂19'20		minimum elong	2243 Jan 04 08:05	13°♂16'57	0°20'53
opposition	2236 Jun 05 13:52	15°♂10'06	0°00'-1	max. Earth dist.	2243 Jan 04 21:53	13°♂19'01	20.42715 AU
min. Earth dist.	2236 Jun 05 11:11	15°♂10'22	17.97869 AU	retrograde	2243 Apr 22 01:59	17°♂23'25	
direct	2236 Aug 21 22:14	13°♂07'45		opposition	2243 Jul 07 22:23	15°♂24'18	0°-24'-41
				min. Earth dist.	2243 Jul 07 08:27	15°♂25'42	18.46094 AU
conjunction	2236 Dec 09 10:14	17°♂23'28	0°-1'-48	direct	2243 Sep 22 22:42	13°♂24'45	
minimum elong	2236 Dec 09 10:14	17°♂23'28	0°01'49				
behind sun begin	2236 Dec 09 03:40	17°♂22'29		conjunction	2244 Jan 08 17:19	17°♂30'05	0°-23'-41
behind sun end	2236 Dec 09 16:48	17°♂24'27		minimum elong	2244 Jan 08 17:19	17°♂30'05	0°23'42
max. Earth dist.	2236 Dec 09 13:16	17°♂23'52	20.01203 AU	max. Earth dist.	2244 Jan 09 08:48	17°♂32'23	20.49432 AU
retrograde	2237 Mar 26 13:25	21°♂34'58		retrograde	2244 Apr 25 15:23	21°♂35'49	
opposition	2237 Jun 10 10:19	19°♂34'53	0°-3'-48	opposition	2244 Jul 11 14:00	19°♂36'51	0°-27'-44
min. Earth dist.	2237 Jun 10 05:55	19°♂35'20	18.04537 AU	min. Earth dist.	2244 Jul 10 22:04	19°♂38'28	18.52695 AU
direct	2237 Aug 26 17:55	17°♂32'51		direct	2244 Sep 26 14:34	17°♂37'42	
conjunction	2237 Dec 14 00:01	21°♂47'00	0°-5'-11	conjunction	2245 Jan 12 01:52	21°♂41'42	0°-26'-22
minimum elong	2237 Dec 14 00:00	21°♂47'00	0°05'13	minimum elong	2245 Jan 12 01:52	21°♂41'42	0°26'23
behind sun begin	2237 Dec 13 17:39	21°♂46'04		max. Earth dist.	2245 Jan 12 18:06	21°♂44'07	20.55891 AU
behind sun end	2237 Dec 14 06:22	21°♂47'57		retrograde	2245 Apr 30 02:53	25°♂46'46	
max. Earth dist.	2237 Dec 14 05:47	21°♂47'51	20.07943 AU	opposition	2245 Jul 16 05:09	23°♂47'56	0°-30'-36
retrograde	2238 Mar 31 04:43	25°♂57'33		min. Earth dist.	2245 Jul 15 13:11	23°♂49'32	18.59017 AU
opposition	2238 Jun 15 05:54	23°♂57'36	0°-7'-31	direct	2245 Oct 01 02:29	21°♂49'08	
min. Earth dist.	2238 Jun 14 23:20	23°♂58'16	18.11343 AU				
direct	2238 Aug 31 13:54	21°♂55'56		conjunction	2246 Jan 16 09:57	25°♂51'51	0°-28'-53
				minimum elong	2246 Jan 16 09:57	25°♂51'51	0°28'54
conjunction	2238 Dec 18 12:48	26°♂08'32	0°-8'-29	max. Earth dist.	2246 Jan 17 03:19	25°♂54'25	20.62044 AU
minimum elong	2238 Dec 18 12:48	26°♂08'32	0°08'30	retrograde	2246 May 04 14:40	29°♂56'15	
behind sun begin	2238 Dec 18 07:02	26°♂07'40		opposition	2246 Jul 20 19:27	27°♂57'31	0°-33'-18
behind sun end	2238 Dec 18 18:33	26°♂09'23		min. Earth dist.	2246 Jul 20 01:38	27°♂59'18	18.64990 AU
max. Earth dist.	2238 Dec 18 19:44	26°♂09'34	20.14819 AU	direct	2246 Oct 05 17:18	25°♂59'02	
	2239 Mar 09 11:43	0°♂					
retrograde	2239 Apr 04 19:17	0°♂18'11		conjunction	2247 Jan 20 17:27	0°≈00'30	0°-31'-14
	2239 May 01 18:15	30°♂18'		minimum elong	2247 Jan 20 17:27	0°≈00'30	0°31'16
opposition	2239 Jun 20 01:01	28°♂18'22	0°-11'-10		2247 Jan 20 14:03	0°≈	
min. Earth dist.	2239 Jun 19 16:58	28°♂19'12	18.18288 AU	max. Earth dist.	2247 Jan 21 11:25	0°≈03'09	20.67829 AU
direct	2239 Sep 05 07:03	26°♂17'07		retrograde	2247 May 09 01:12	4°≈04'18	
	2239 Dec 15 06:27	0°♂		opposition	2247 Jul 25 09:21	2°≈05'35	0°-35'-48
				min. Earth dist.	2247 Jul 24 15:43	2°≈07'21	18.70600 AU
conjunction	2239 Dec 23 00:43	0°♂28'11	0°-11'-43	direct	2247 Oct 10 04:14	0°≈07'24	
minimum elong	2239 Dec 23 00:43	0°♂28'11	0°11'45				
behind sun begin	2239 Dec 22 20:02	0°♂27'29		conjunction	2248 Jan 25 00:21	4°≈07'38	0°-33'-25
behind sun end	2239 Dec 23 05:23	0°♂28'52		minimum elong	2248 Jan 25 00:21	4°≈07'38	0°33'26

max. Earth dist.	2248 Jan 25 19:18	4° $\approx$ 10'25	20.73252 AU	conjunction	2256 Feb 25 17:40	6° $\napprox$ 20'23	0°-43'-50
retrograde	2248 May 12 11:38	8° $\approx$ 10'50		minimum elong	2256 Feb 25 17:40	6° $\napprox$ 20'23	0°43'51
opposition	2248 Jul 28 22:19	6° $\approx$ 12'09	0°-38'-7	max. Earth dist.	2256 Feb 26 17:43	6° $\napprox$ 23'50	21.04858 AU
min. Earth dist.	2248 Jul 28 02:55	6° $\approx$ 14'05	18.75833 AU	retrograde	2256 Jun 14 07:34	10° $\napprox$ 20'51	
direct	2248 Oct 13 17:10	4° $\approx$ 14'11		min. Earth dist.	2256 Aug 30 09:39	8° $\napprox$ 24'32	19.06108 AU
				opposition	2256 Aug 31 09:06	8° $\napprox$ 22'12	0°-48'-39
conjunction	2249 Jan 28 06:45	8° $\approx$ 13'16	0°-35'-25	direct	2256 Nov 15 10:10	6° $\napprox$ 25'49	
minimum elong	2249 Jan 28 06:45	8° $\approx$ 13'16	0°35'27				
max. Earth dist.	2249 Jan 29 02:22	8° $\approx$ 16'09	20.78298 AU	conjunction	2257 Feb 28 22:13	10° $\napprox$ 18'42	0°-44'-12
retrograde	2249 May 16 20:27	12° $\approx$ 15'55		minimum elong	2257 Feb 28 22:13	10° $\napprox$ 18'42	0°44'13
opposition	2249 Aug 02 10:36	10° $\approx$ 17'12	0°-40'-13	max. Earth dist.	2257 Mar 01 22:16	10° $\napprox$ 22'09	21.07150 AU
min. Earth dist.	2249 Aug 01 15:32	10° $\approx$ 19'06	18.80720 AU	retrograde	2257 Jun 18 14:09	14° $\napprox$ 19'07	
direct	2249 Oct 18 02:58	8° $\approx$ 19'27		opposition	2257 Sep 04 17:30	12° $\napprox$ 20'28	0°-48'-57
				min. Earth dist.	2257 Sep 03 19:20	12° $\napprox$ 22'41	19.08157 AU
conjunction	2250 Feb 01 12:40	12° $\approx$ 17'27	0°-37'-14	direct	2257 Nov 19 15:21	10° $\napprox$ 24'15	
minimum elong	2250 Feb 01 12:40	12° $\approx$ 17'27	0°37'14				
max. Earth dist.	2250 Feb 02 09:13	12° $\approx$ 20'27	20.83024 AU	conjunction	2258 Mar 05 02:53	14° $\napprox$ 16'46	0°-44'-22
	2250 Mar 24 07:35	15° $\approx$		minimum elong	2258 Mar 05 02:53	14° $\napprox$ 16'46	0°44'23
retrograde	2250 May 21 06:00	16° $\approx$ 19'35		max. Earth dist.	2258 Mar 06 02:35	14° $\napprox$ 20'09	21.08945 AU
	2250 Jul 21 06:56	15° $\napprox$		retrograde	2258 Jun 22 23:31	18° $\napprox$ 17'11	
opposition	2250 Aug 06 22:12	14° $\approx$ 20'51	0°-42'-5	min. Earth dist.	2258 Sep 08 02:52	16° $\napprox$ 20'48	19.09675 AU
min. Earth dist.	2250 Aug 06 01:16	14° $\approx$ 22'57	18.85292 AU	opposition	2258 Sep 09 01:39	16° $\napprox$ 18'32	0°-49'-1
direct	2250 Oct 22 13:48	12° $\approx$ 23'18		direct	2258 Nov 23 21:42	14° $\napprox$ 22'25	
	2251 Jan 13 08:35	15° $\approx$					
conjunction	2251 Feb 05 18:00	16° $\approx$ 20'18	0°-38'-50	conjunction	2259 Mar 09 07:34	18° $\napprox$ 14'38	0°-44'-20
minimum elong	2251 Feb 05 18:00	16° $\approx$ 20'18	0°38'51	minimum elong	2259 Mar 09 07:34	18° $\napprox$ 14'38	0°44'20
max. Earth dist.	2251 Feb 06 15:25	16° $\approx$ 23'25	20.87439 AU	max. Earth dist.	2259 Mar 10 06:55	18° $\napprox$ 17'59	21.10166 AU
retrograde	2251 May 25 13:41	20° $\approx$ 21'59		retrograde	2259 Jun 27 06:22	22° $\napprox$ 15'08	
opposition	2251 Aug 11 09:25	18° $\approx$ 23'15	0°-43'-45	opposition	2259 Sep 13 09:41	20° $\napprox$ 16'25	0°-48'-50
min. Earth dist.	2251 Aug 10 12:44	18° $\approx$ 25'19	18.89576 AU	min. Earth dist.	2259 Sep 12 12:26	20° $\napprox$ 18'32	19.10604 AU
direct	2251 Oct 26 22:02	16° $\approx$ 25'54		direct	2259 Nov 28 02:35	18° $\napprox$ 20'22	
conjunction	2252 Feb 09 23:10	20° $\approx$ 21'58	0°-40'-14	conjunction	2260 Mar 12 12:32	22° $\napprox$ 12'23	0°-44'-4
minimum elong	2252 Feb 09 23:10	20° $\approx$ 21'58	0°40'15	minimum elong	2260 Mar 12 12:32	22° $\napprox$ 12'23	0°44'04
max. Earth dist.	2252 Feb 10 21:24	20° $\approx$ 25'12	20.91582 AU	max. Earth dist.	2260 Mar 13 11:08	22° $\napprox$ 15'36	21.10803 AU
retrograde	2252 May 28 23:02	24° $\approx$ 23'17		retrograde	2260 Jun 30 15:19	26° $\napprox$ 12'57	
opposition	2252 Aug 14 19:43	22° $\approx$ 24'32	0°-45'-11	opposition	2260 Sep 16 17:10	24° $\napprox$ 14'10	0°-48'-26
min. Earth dist.	2252 Aug 13 21:19	22° $\approx$ 26'46	18.93574 AU	min. Earth dist.	2260 Sep 15 19:40	24° $\napprox$ 16'19	19.10934 AU
direct	2252 Oct 30 07:08	20° $\approx$ 27'23		direct	2260 Dec 01 08:46	22° $\napprox$ 18'07	
conjunction	2253 Feb 13 04:01	24° $\approx$ 22'39	0°-41'-27	conjunction	2261 Mar 16 17:35	26° $\napprox$ 10'00	0°-43'-36
minimum elong	2253 Feb 13 04:01	24° $\approx$ 22'39	0°41'27	minimum elong	2261 Mar 16 17:35	26° $\napprox$ 10'00	0°43'37
max. Earth dist.	2253 Feb 14 02:54	24° $\approx$ 25'57	20.95418 AU	max. Earth dist.	2261 Mar 17 15:34	26° $\napprox$ 13'08	21.10830 AU
retrograde	2253 Jun 02 05:59	28° $\approx$ 23'39			2261 Jun 13 22:11	0° $\nabla$	
min. Earth dist.	2253 Aug 18 07:53	26° $\approx$ 27'06	18.97259 AU	retrograde	2261 Jul 04 21:57	0° $\nabla$ 10'42	
opposition	2253 Aug 19 05:45	26° $\approx$ 24'55	0°-46'-23		2261 Jul 26 06:06	30° $\napprox$	
direct	2253 Nov 03 13:43	24° $\approx$ 27'59		min. Earth dist.	2261 Sep 20 04:44	28° $\napprox$ 13'48	19.10673 AU
				opposition	2261 Sep 21 00:38	28° $\napprox$ 11'48	0°-47'-47
conjunction	2254 Feb 17 08:37	28° $\approx$ 22'30	0°-42'-27	direct	2261 Dec 05 13:01	26° $\napprox$ 15'43	
minimum elong	2254 Feb 17 08:37	28° $\approx$ 22'30	0°42'28		2262 Mar 18 17:49	0° $\nabla$	
max. Earth dist.	2254 Feb 18 08:03	28° $\approx$ 25'53	20.98940 AU	conjunction	2262 Mar 20 22:37	0° $\nabla$ 07'32	0°-42'-55
	2254 Mar 18 06:56	0° $\napprox$		minimum elong	2262 Mar 20 22:37	0° $\nabla$ 07'32	0°42'55
retrograde	2254 Jun 06 15:24	2° $\napprox$ 23'15		max. Earth dist.	2262 Mar 21 19:54	0° $\nabla$ 10'34	21.10309 AU
opposition	2254 Aug 23 15:12	0° $\napprox$ 24'33	0°-47'-23	retrograde	2262 Jul 09 06:51	4° $\nabla$ 08'26	
min. Earth dist.	2254 Aug 22 15:53	0° $\napprox$ 26'52	19.00603 AU	min. Earth dist.	2262 Sep 24 11:37	2° $\nabla$ 11'24	19.09888 AU
	2254 Sep 02 23:19	30° $\napprox$		opposition	2262 Sep 25 07:46	2° $\nabla$ 09'23	0°-46'-55
direct	2254 Nov 07 21:37	28° $\approx$ 27'49		direct	2262 Dec 09 19:05	0° $\nabla$ 13'13	
	2255 Jan 08 16:32	0° $\napprox$					
conjunction	2255 Feb 21 13:09	2° $\napprox$ 21'41	0°-43'-14	conjunction	2263 Mar 25 03:57	4° $\nabla$ 05'05	0°-42'-1
minimum elong	2255 Feb 21 13:09	2° $\napprox$ 21'41	0°43'15	minimum elong	2263 Mar 25 03:57	4° $\nabla$ 05'05	0°42'03
max. Earth dist.	2255 Feb 22 13:02	2° $\napprox$ 25'08	21.02093 AU	max. Earth dist.	2263 Mar 26 00:49	4° $\nabla$ 08'03	21.09277 AU
retrograde	2255 Jun 10 22:02	6° $\napprox$ 22'17		retrograde	2263 Jul 13 13:28	8° $\nabla$ 06'13	
min. Earth dist.	2255 Aug 27 01:57	4° $\napprox$ 25'50	19.03570 AU	opposition	2263 Sep 29 14:45	6° $\nabla$ 07'01	0°-45'-49
opposition	2255 Aug 28 00:25	4° $\napprox$ 23'36	0°-48'-8	min. Earth dist.	2263 Sep 28 20:08	6° $\nabla$ 08'53	19.08630 AU
direct	2255 Nov 12 03:17	2° $\napprox$ 27'03		direct	2263 Dec 13 22:41	4° $\nabla$ 10'46	

conjunction	2264 Mar 28 09:34	8°♊02'45	0°-40'-56	conjunction	2272 Apr 29 23:37	10°♏07'43	0°-25'-34
minimum elong	2264 Mar 28 09:34	8°♊02'45	0°40'56	minimum elong	2272 Apr 29 23:37	10°♏07'43	0°25'35
max. Earth dist.	2264 Mar 29 05:40	8°♊05'37	21.07812 AU	max. Earth dist.	2272 Apr 30 10:55	10°♏09'20	20.82394 AU
retrograde	2264 Jul 16 22:44	12°♊04'12		retrograde	2272 Aug 19 05:14	14°♏13'38	
opposition	2264 Oct 02 21:30	10°♊04'50	0°-44'-30	opposition	2272 Nov 04 06:20	12°♏13'19	0°-26'-48
min. Earth dist.	2264 Oct 02 02:43	10°♊06'44	19.06953 AU	min. Earth dist.	2272 Nov 03 20:27	12°♏14'20	18.79935 AU
direct	2264 Dec 17 04:30	8°♊08'29		direct	2273 Jan 17 23:14	10°♏15'43	
conjunction	2265 Apr 01 15:27	12°♊00'42	0°-39'-38	conjunction	2273 May 04 10:26	14°♏13'12	0°-22'-55
minimum elong	2265 Apr 01 15:27	12°♊00'42	0°39'39	minimum elong	2273 May 04 10:26	14°♏13'12	0°22'56
max. Earth dist.	2265 Apr 02 11:04	12°♊03'30	21.05927 AU	max. Earth dist.	2273 May 04 20:22	14°♏14'37	20.77354 AU
retrograde	2265 Jul 21 06:01	16°♊02'31			2273 May 18 00:57	15°♏	
min. Earth dist.	2265 Oct 06 10:57	14°♊04'46	19.04878 AU	retrograde	2273 Aug 23 15:27	18°♏19'51	
opposition	2265 Oct 07 04:13	14°♊03'01	0°-42'-58	opposition	2273 Nov 08 14:34	16°♏19'21	0°-23'-48
direct	2265 Dec 21 08:06	12°♊06'33		min. Earth dist.	2273 Nov 08 06:47	16°♏20'10	18.74667 AU
conjunction	2266 Apr 05 21:44	15°♊59'06	0°-38'-9	direct	2273 Dec 13 17:41	15°♏♌	
minimum elong	2266 Apr 05 21:44	15°♊59'06	0°38'10		2274 Jan 22 05:49	14°♏21'28	
max. Earth dist.	2266 Apr 06 16:28	16°♊01'47	21.03683 AU		2274 Mar 02 01:07	15°♏	
retrograde	2266 Jul 25 15:38	20°♊01'21		conjunction	2274 May 08 21:57	18°♏19'56	0°-20'-8
opposition	2266 Oct 11 10:55	18°♊01'43	0°-41'-14	minimum elong	2274 May 08 21:57	18°♏19'56	0°20'09
min. Earth dist.	2266 Oct 10 17:35	18°♊03'28	19.02451 AU	max. Earth dist.	2274 May 09 05:33	18°♏21'01	20.71894 AU
direct	2266 Dec 25 13:29	16°♊05'08		retrograde	2274 Aug 28 04:33	22°♏27'20	
conjunction	2267 Apr 10 04:26	19°♊58'07	0°-36'-29	opposition	2274 Nov 12 22:59	20°♏26'38	0°-20'-39
minimum elong	2267 Apr 10 04:26	19°♊58'07	0°36'30	min. Earth dist.	2274 Nov 12 16:22	20°♏27'19	18.69004 AU
max. Earth dist.	2267 Apr 10 22:36	20°♊00'43	21.01072 AU	direct	2275 Jan 26 14:36	18°♏28'23	
retrograde	2267 Jul 30 00:10	24°♊00'51		conjunction	2275 May 13 10:17	22°♏27'56	0°-17'-14
opposition	2267 Oct 15 17:47	22°♊01'06	0°-39'-18	minimum elong	2275 May 13 10:17	22°♏27'56	0°17'16
min. Earth dist.	2267 Oct 15 02:05	22°♊02'42	18.99659 AU	max. Earth dist.	2275 May 13 16:41	22°♏28'51	20.66046 AU
direct	2267 Dec 29 17:45	20°♊04'25		retrograde	2275 Sep 01 15:27	26°♏36'05	
conjunction	2268 Apr 13 11:46	23°♊57'55	0°-34'-38	opposition	2275 Nov 17 07:49	24°♏35'10	0°-17'-23
minimum elong	2268 Apr 13 11:46	23°♊57'55	0°34'40	min. Earth dist.	2275 Nov 17 03:11	24°♏35'39	18.62985 AU
max. Earth dist.	2268 Apr 14 04:43	24°♊00'20	20.98117 AU	direct	2276 Jan 30 22:02	22°♏36'34	
retrograde	2268 Aug 02 10:27	28°♊01'11		conjunction	2276 May 16 23:18	26°♏37'14	0°-14'-14
min. Earth dist.	2268 Oct 18 09:06	26°♊02'55	18.96517 AU	minimum elong	2276 May 16 23:18	26°♏37'14	0°14'14
opposition	2268 Oct 19 00:31	26°♊01'21	0°-37'-10	behind sun begin	2276 May 16 20:15	26°♏36'48	
direct	2269 Jan 01 22:53	24°♊04'31		behind sun end	2276 May 17 02:21	26°♏37'40	
conjunction	2269 Apr 17 19:40	27°♊58'40	0°-32'-37	max. Earth dist.	2276 May 17 03:19	26°♏37'48	20.59895 AU
minimum elong	2269 Apr 17 19:41	27°♊58'40	0°32'38		2276 Jul 23 16:14	0°♐	
max. Earth dist.	2269 Apr 18 11:49	28°♊00'58	20.94787 AU	retrograde	2276 Sep 05 05:12	0°♐46'12	
retrograde	2269 May 24 18:08	0°♋			2276 Oct 19 08:50	30°♏♌	
opposition	2269 Aug 06 19:38	2°♏02'32		opposition	2276 Nov 20 16:50	28°♏45'03	0°-14'00
min. Earth dist.	2269 Oct 23 07:39	0°♏02'35	0°-34'-50	min. Earth dist.	2276 Nov 20 13:25	28°♏45'25	18.56706 AU
direct	2269 Oct 22 18:01	0°♏03'59	18.92995 AU	direct	2277 Feb 03 07:46	26°♏46'03	
conjunction	2270 Jan 06 04:05	30°♏♊			2277 May 07 17:44	0°♐	
minimum elong	2270 Mar 16 12:04	28°♊05'38		conjunction	2277 May 21 13:08	0°♐47'57	0°-11'-8
behind sun begin		0°♋		minimum elong	2277 May 21 13:08	0°♐47'57	0°11'10
behind sun end				behind sun begin	2277 May 21 08:12	0°♐47'15	
max. Earth dist.	2270 Apr 22 04:06	2°♏00'28	0°-30'-26	behind sun end	2277 May 21 18:04	0°♐48'39	
retrograde	2270 Apr 22 04:06	2°♏00'28	0°30'27	max. Earth dist.	2277 May 21 16:15	0°♐48'23	20.53501 AU
opposition	2270 Apr 22 18:43	2°♏02'34	20.91086 AU	retrograde	2277 Sep 09 17:20	4°♐57'44	
min. Earth dist.	2270 Aug 11 07:06	6°♏05'00		opposition	2277 Nov 25 02:25	2°♐56'23	0°-10'-31
direct	2270 Oct 27 14:58	4°♏04'57	0°-32'-20	min. Earth dist.	2277 Nov 25 00:40	2°♐56'34	18.50220 AU
conjunction	2271 Jan 10 09:57	2°♏07'49		direct	2278 Feb 07 16:28	0°♐57'00	
minimum elong	2271 Apr 26 13:29	6°♏03'28	0°-28'-5	conjunction	2278 May 26 03:34	5°♐00'10	0°-7'-59
behind sun begin	2271 Apr 26 13:29	6°♏03'28	0°28'05	minimum elong	2278 May 26 03:33	5°♐00'10	0°07'59
behind sun end	2271 Apr 27 02:57	6°♏05'24	20.86958 AU	behind sun begin	2278 May 25 21:33	4°♐59'18	
max. Earth dist.	2271 Aug 15 16:50	10°♏08'41		behind sun end	2278 May 26 09:33	5°♐01'01	
retrograde	2271 Oct 31 22:29	8°♏08'31	0°-29'-39	max. Earth dist.	2278 May 26 04:19	5°♐00'16	20.46954 AU
opposition	2271 Oct 31 11:36	8°♏09'38	18.84736 AU	retrograde	2278 Sep 14 07:49	9°♐10'50	
direct	2272 Jan 14 15:54	6°♏11'11		opposition	2278 Nov 29 12:26	7°♐09'17	0°-6'-59
				min. Earth dist.	2278 Nov 29 11:52	7°♐09'20	18.43614 AU
				direct	2279 Feb 12 02:52	5°♐09'30	

conjunction	2279 May 30 19:07	9°II14'01	0°-4'-46	behind sun end	2285 Jun 26 13:36	5°☾18'27	
minimum elong	2279 May 30 19:08	9°II14'01	0°04'46	max. Earth dist.	2285 Jun 26 01:18	5°☾16'38	20.00065 AU
behind sun begin	2279 May 30 12:33	9°II13'05		retrograde	2285 Oct 15 05:01	9°☾35'19	
behind sun end	2279 May 31 01:43	9°II14'58		opposition	2285 Dec 29 03:32	7°☾33'06	0°18'31
max. Earth dist.	2279 May 30 19:07	9°II14'01	20.40292 AU	min. Earth dist.	2285 Dec 29 12:58	7°☾32'05	17.96698 AU
retrograde	2279 Sep 18 21:43	13°II25'33		direct	2286 Mar 13 20:07	5°☾30'49	
opposition	2279 Dec 03 22:52	11°II23'51	0°-3'-22				
min. Earth dist.	2279 Dec 03 23:49	11°II23'45	18.36917 AU	conjunction	2286 Jul 01 09:35	9°☾46'11	0°18'15
direct	2280 Feb 16 13:13	9°II23'42		minimum elong	2286 Jul 01 09:34	9°☾46'11	0°18'16
				max. Earth dist.	2286 Jun 30 20:10	9°☾44'10	19.93358 AU
conjunction	2280 Jun 03 11:27	13°II29'38	0°-1'-28	retrograde	2286 Oct 20 00:49	14°☾04'14	
minimum elong	2280 Jun 03 11:26	13°II29'38	0°01'29	opposition	2287 Jan 02 18:56	12°☾01'54	0°22'01
behind sun begin	2280 Jun 03 04:41	13°II28'40		min. Earth dist.	2287 Jan 03 06:30	12°☾00'39	17.90002 AU
behind sun end	2280 Jun 03 18:11	13°II30'36		direct	2287 Mar 18 11:56	9°☾59'13	
max. Earth dist.	2280 Jun 03 08:51	13°II29'19	20.33582 AU				
retrograde	2280 Sep 22 12:58	17°II42'06		conjunction	2287 Jul 06 08:44	14°☾16'10	0°21'21
asc. node	2280 Nov 10 17:18	16°II44'34		minimum elong	2287 Jul 06 08:44	14°☾16'10	0°21'21
opposition	2280 Dec 07 09:59	15°II40'15	0°00'16	max. Earth dist.	2287 Jul 05 18:31	14°☾14'02	19.86671 AU
min. Earth dist.	2280 Dec 07 12:12	15°II40'01	18.30200 AU	retrograde	2287 Oct 24 21:33	18°☾35'02	
direct	2281 Feb 20 00:30	13°II39'43		opposition	2288 Jan 07 10:52	16°☾32'35	0°25'24
				min. Earth dist.	2288 Jan 07 23:20	16°☾31'14	17.83342 AU
conjunction	2281 Jun 08 04:39	17°II47'09	0°01'56	direct	2288 Mar 22 05:39	14°☾29'29	
minimum elong	2281 Jun 08 04:38	17°II47'09	0°01'56				
behind sun begin	2281 Jun 07 21:52	17°II46'11		conjunction	2288 Jul 10 08:29	18°☾47'58	0°24'20
behind sun end	2281 Jun 08 11:23	17°II48'07		minimum elong	2288 Jul 10 08:29	18°☾47'58	0°24'21
max. Earth dist.	2281 Jun 08 01:30	17°II46'44	20.26854 AU	max. Earth dist.	2288 Jul 09 15:27	18°☾45'24	19.80059 AU
retrograde	2281 Sep 27 04:43	22°II00'33		retrograde	2288 Oct 28 17:36	23°☾07'38	
opposition	2281 Dec 11 21:45	19°II58'36	0°03'56	opposition	2289 Jan 11 03:42	21°☾05'03	0°28'40
min. Earth dist.	2281 Dec 12 01:12	19°II58'14	18.23474 AU	min. Earth dist.	2289 Jan 11 18:15	21°☾03'28	17.76808 AU
direct	2282 Feb 24 12:32	17°II57'44		direct	2289 Mar 26 22:42	19°☾01'31	
conjunction	2282 Jun 12 22:45	22°II06'41	0°05'16	conjunction	2289 Jul 15 08:53	23°☾21'31	0°27'11
minimum elong	2282 Jun 12 22:46	22°II06'41	0°05'15	minimum elong	2289 Jul 15 08:53	23°☾21'31	0°27'11
behind sun begin	2282 Jun 12 16:14	22°II05'45		max. Earth dist.	2289 Jul 14 15:22	23°☾18'52	19.73608 AU
behind sun end	2282 Jun 13 05:18	22°II07'38		retrograde	2289 Nov 02 15:27	27°☾41'55	
max. Earth dist.	2282 Jun 12 16:55	22°II05'51	20.20149 AU	opposition	2290 Jan 15 21:05	25°☾39'11	0°31'46
retrograde	2282 Oct 01 21:23	26°II21'03		min. Earth dist.	2290 Jan 16 12:03	25°☾37'34	17.70459 AU
opposition	2282 Dec 16 10:04	24°II19'01	0°07'37	direct	2290 Mar 31 18:58	23°☾35'15	
min. Earth dist.	2282 Dec 16 15:06	24°II18'28	18.16783 AU				
direct	2283 Mar 01 01:04	22°II17'48		conjunction	2290 Jul 20 10:04	27°☾56'42	0°29'53
				minimum elong	2290 Jul 20 10:04	27°☾56'42	0°29'53
conjunction	2283 Jun 17 18:07	26°II28'21	0°08'33	max. Earth dist.	2290 Jul 19 14:22	27°☾53'42	19.67379 AU
minimum elong	2283 Jun 17 18:08	26°II28'21	0°08'34		2290 Aug 24 08:41	0°♂	
behind sun begin	2283 Jun 17 12:16	26°II27'30		retrograde	2290 Nov 07 11:33	2°♂17'47	
behind sun end	2283 Jun 18 00:00	26°II29'12		opposition	2291 Jan 20 15:10	0°♂14'56	0°34'40
max. Earth dist.	2283 Jun 17 11:39	26°II27'24	20.13457 AU	min. Earth dist.	2291 Jan 21 08:09	0°♂13'05	17.64386 AU
	2283 Aug 26 05:08	0°☾			2291 Jan 26 08:23	30°♂☾	
retrograde	2283 Oct 06 15:07	0°☾43'39		direct	2291 Apr 05 13:40	28°☾10'34	
	2283 Nov 17 16:26	30°♂II			2291 Jun 11 01:16	0°♂	
opposition	2283 Dec 20 23:08	28°II41'34	0°11'17				
min. Earth dist.	2283 Dec 21 05:29	28°II40'53	18.10090 AU	conjunction	2291 Jul 25 11:58	2°♂33'28	0°32'24
direct	2284 Mar 04 14:39	26°II40'02		minimum elong	2291 Jul 25 11:58	2°♂33'27	0°32'24
	2284 Jun 06 22:13	0°☾		max. Earth dist.	2291 Jul 24 15:45	2°♂30'22	19.61464 AU
				retrograde	2291 Nov 12 10:18	6°♂55'09	
conjunction	2284 Jun 21 14:16	0°☾52'11	0°11'50	opposition	2292 Jan 25 09:55	4°♂52'12	0°37'22
minimum elong	2284 Jun 21 14:16	0°☾52'10	0°11'50	min. Earth dist.	2292 Jan 26 02:53	4°♂50'21	17.58651 AU
behind sun begin	2284 Jun 21 09:38	0°☾51'30		direct	2292 Apr 09 12:03	2°♂47'27	
behind sun end	2284 Jun 21 18:53	0°☾52'51					
max. Earth dist.	2284 Jun 21 04:46	0°☾50'46	20.06766 AU	conjunction	2292 Jul 29 14:13	7°♂11'42	0°34'42
retrograde	2284 Oct 10 09:32	5°☾08'26		minimum elong	2292 Jul 29 14:13	7°♂11'42	0°34'42
opposition	2284 Dec 24 12:57	3°☾06'17	0°14'56	max. Earth dist.	2292 Jul 28 16:40	7°♂08'24	19.55916 AU
min. Earth dist.	2284 Dec 24 21:14	3°☾05'24	18.03404 AU	retrograde	2292 Nov 16 07:06	11°♂33'59	
direct	2285 Mar 09 04:49	1°☾04'23		opposition	2293 Jan 29 05:30	9°♂30'57	0°39'51
				min. Earth dist.	2293 Jan 30 00:08	9°♂28'55	17.53335 AU
conjunction	2285 Jun 26 11:35	5°☾18'09	0°15'05	direct	2293 Apr 14 08:28	7°♂25'51	
minimum elong	2285 Jun 26 11:34	5°☾18'09	0°15'05				
behind sun begin	2285 Jun 26 09:33	5°☾17'51		conjunction	2293 Aug 03 17:04	11°♂51'24	0°36'48

minimum elong	2293 Aug 03 17:04	11° $\Omega$ 51'24	0°36'48	direct	2301 May 23 15:40	15° $\eta$ 21'46	
max. Earth dist.	2293 Aug 02 19:02	11° $\Omega$ 48'00	19.50833 AU	max. Earth dist.	2301 Sep 12 03:29	19° $\eta$ 50'20	19.28569 AU
	2293 Sep 29 02:36	15° $\Omega$					
retrograde	2293 Nov 21 06:56	16° $\Omega$ 14'13		conjunction	2301 Sep 13 04:14	19° $\eta$ 54'14	0°44'05
	2294 Jan 14 22:59	15° $\mathbb{R}\Omega$		minimum elong	2301 Sep 13 04:14	19° $\eta$ 54'14	0°44'05
opposition	2294 Feb 03 01:34	14° $\Omega$ 11'08	0°42'04	retrograde	2301 Dec 30 10:48	24° $\eta$ 18'56	
min. Earth dist.	2294 Feb 03 19:45	14° $\Omega$ 09'09	17.48502 AU	opposition	2302 Mar 13 18:22	22° $\eta$ 16'25	0°48'58
direct	2294 Apr 19 08:32	12° $\Omega$ 05'45		min. Earth dist.	2302 Mar 14 15:00	22° $\eta$ 14'10	17.28250 AU
	2294 Jul 14 10:29	15° $\Omega$		direct	2302 May 28 19:04	20° $\eta$ 10'02	
				max. Earth dist.	2302 Sep 17 09:35	24° $\eta$ 39'04	19.27959 AU
conjunction	2294 Aug 08 20:29	16° $\Omega$ 32'32	0°38'40				
minimum elong	2294 Aug 08 20:28	16° $\Omega$ 32'32	0°38'40	conjunction	2302 Sep 18 08:55	24° $\eta$ 42'45	0°43'39
max. Earth dist.	2294 Aug 07 21:51	16° $\Omega$ 29'02	19.46248 AU	minimum elong	2302 Sep 18 08:55	24° $\eta$ 42'45	0°43'38
retrograde	2294 Nov 26 04:51	20° $\Omega$ 55'50		retrograde	2303 Jan 04 11:57	29° $\eta$ 07'16	
opposition	2295 Feb 07 22:35	18° $\Omega$ 52'46	0°44'01	opposition	2303 Mar 18 19:39	27° $\eta$ 04'49	0°48'19
min. Earth dist.	2295 Feb 08 18:11	18° $\Omega$ 50'37	17.44190 AU	min. Earth dist.	2303 Mar 19 16:02	27° $\eta$ 02'35	17.27879 AU
direct	2295 Apr 24 06:18	16° $\Omega$ 47'08		direct	2303 Jun 02 22:55	24° $\eta$ 58'24	
max. Earth dist.	2295 Aug 13 00:57	21° $\Omega$ 11'28	19.42210 AU				
				conjunction	2303 Sep 23 13:00	29° $\eta$ 31'10	0°42'54
conjunction	2295 Aug 14 00:17	21° $\Omega$ 15'05	0°40'17	minimum elong	2303 Sep 23 13:00	29° $\eta$ 31'10	0°42'55
minimum elong	2295 Aug 14 00:16	21° $\Omega$ 15'05	0°40'17	max. Earth dist.	2303 Sep 22 13:11	29° $\eta$ 27'25	19.27848 AU
retrograde	2295 Dec 01 05:46	25° $\Omega$ 38'50			2303 Oct 01 04:00	0° $\underline{\Omega}$	
opposition	2296 Feb 12 20:03	23° $\Omega$ 35'48	0°45'41	retrograde	2304 Jan 09 11:20	3° $\underline{\Omega}$ 55'26	
min. Earth dist.	2296 Feb 13 15:06	23° $\Omega$ 33'43	17.40423 AU	opposition	2304 Mar 22 21:06	1° $\underline{\Omega}$ 53'01	0°47'20
direct	2296 Apr 28 07:46	21° $\Omega$ 30'00		min. Earth dist.	2304 Mar 23 17:10	1° $\underline{\Omega}$ 50'49	17.28038 AU
max. Earth dist.	2296 Aug 17 05:24	25° $\Omega$ 55'26	19.38706 AU		2304 May 15 12:02	30° $\mathbb{R}\eta$	
				direct	2304 Jun 07 03:18	29° $\eta$ 46'34	
conjunction	2296 Aug 18 04:32	25° $\Omega$ 59'02	0°41'38		2304 Jun 29 15:36	0° $\underline{\Omega}$	
minimum elong	2296 Aug 18 04:32	25° $\Omega$ 59'01	0°41'39				
	2296 Nov 06 08:53	0° $\eta$		conjunction	2304 Sep 27 16:45	4° $\underline{\Omega}$ 19'15	0°41'52
retrograde	2296 Dec 05 05:04	0° $\eta$ 23'08		minimum elong	2304 Sep 27 16:45	4° $\underline{\Omega}$ 19'15	0°41'52
	2297 Jan 03 11:24	30° $\mathbb{R}\Omega$		max. Earth dist.	2304 Sep 26 18:40	4° $\underline{\Omega}$ 15'46	19.28284 AU
opposition	2297 Feb 16 18:26	28° $\Omega$ 20'13	0°47'03	retrograde	2305 Jan 13 11:38	8° $\underline{\Omega}$ 43'09	
min. Earth dist.	2297 Feb 17 14:44	28° $\Omega$ 17'59	17.37192 AU	opposition	2305 Mar 27 22:39	6° $\underline{\Omega}$ 40'47	0°46'00
direct	2297 May 03 07:06	26° $\Omega$ 14'16		min. Earth dist.	2305 Mar 28 17:38	6° $\underline{\Omega}$ 38'43	17.28746 AU
	2297 Aug 11 12:23	0° $\eta$		direct	2305 Jun 12 08:40	4° $\underline{\Omega}$ 34'22	
max. Earth dist.	2297 Aug 22 08:45	0° $\eta$ 40'29	19.35737 AU				
				conjunction	2305 Oct 02 19:51	9° $\underline{\Omega}$ 06'47	0°40'32
conjunction	2297 Aug 23 08:53	0° $\eta$ 44'15	0°42'43	minimum elong	2305 Oct 02 19:51	9° $\underline{\Omega}$ 06'47	0°40'32
minimum elong	2297 Aug 23 08:53	0° $\eta$ 44'15	0°42'43	max. Earth dist.	2305 Oct 01 22:08	9° $\underline{\Omega}$ 03'22	19.29285 AU
retrograde	2297 Dec 10 06:33	5° $\eta$ 08'41		retrograde	2306 Jan 18 10:10	13° $\underline{\Omega}$ 30'16	
opposition	2298 Feb 21 17:18	3° $\eta$ 05'51	0°48'06	opposition	2306 Apr 02 00:22	11° $\underline{\Omega}$ 27'57	0°44'22
min. Earth dist.	2298 Feb 22 13:09	3° $\eta$ 03'40	17.34471 AU	min. Earth dist.	2306 Apr 02 18:57	11° $\underline{\Omega}$ 25'56	17.30051 AU
direct	2298 May 08 09:32	0° $\eta$ 59'47		direct	2306 Jun 17 12:47	9° $\underline{\Omega}$ 21'34	
conjunction	2298 Aug 28 13:48	5° $\eta$ 30'38	0°43'31	conjunction	2306 Oct 07 22:28	13° $\underline{\Omega}$ 53'36	0°38'55
minimum elong	2298 Aug 28 13:48	5° $\eta$ 30'38	0°43'31	minimum elong	2306 Oct 07 22:28	13° $\underline{\Omega}$ 53'37	0°38'55
max. Earth dist.	2298 Aug 27 14:16	5° $\eta$ 26'57	19.33245 AU	max. Earth dist.	2306 Oct 07 02:30	13° $\underline{\Omega}$ 50'28	19.30898 AU
retrograde	2298 Dec 15 07:08	9° $\eta$ 55'16		retrograde	2307 Jan 23 10:18	18° $\underline{\Omega}$ 16'35	
opposition	2299 Feb 26 16:50	7° $\eta$ 52'32	0°48'50	opposition	2307 Apr 07 02:01	16° $\underline{\Omega}$ 14'22	0°42'25
min. Earth dist.	2299 Feb 27 13:44	7° $\eta$ 50'14	17.32218 AU	min. Earth dist.	2307 Apr 07 18:44	16° $\underline{\Omega}$ 12'33	17.31965 AU
direct	2299 May 13 10:27	5° $\eta$ 46'23		direct	2307 Jun 22 18:21	14° $\underline{\Omega}$ 08'05	
				max. Earth dist.	2307 Oct 12 05:45	18° $\underline{\Omega}$ 36'40	19.33137 AU
conjunction	2299 Sep 02 18:40	10° $\eta$ 17'55	0°44'00				
minimum elong	2299 Sep 02 18:40	10° $\eta$ 17'55	0°44'00	conjunction	2307 Oct 13 00:26	18° $\underline{\Omega}$ 39'36	0°37'03
max. Earth dist.	2299 Sep 01 17:52	10° $\eta$ 14'02	19.31227 AU	minimum elong	2307 Oct 13 00:26	18° $\underline{\Omega}$ 39'36	0°37'02
retrograde	2299 Dec 20 08:47	14° $\eta$ 42'41		retrograde	2308 Jan 28 08:34	23° $\underline{\Omega}$ 02'02	
opposition	2300 Mar 03 16:57	12° $\eta$ 40'02	0°49'14	opposition	2308 Apr 11 03:53	20° $\underline{\Omega}$ 59'56	0°40'11
min. Earth dist.	2300 Mar 04 13:26	12° $\eta$ 37'47	17.30434 AU	min. Earth dist.	2308 Apr 11 20:00	20° $\underline{\Omega}$ 58'12	17.34530 AU
direct	2300 May 18 13:26	10° $\eta$ 33'47		direct	2308 Jun 26 21:11	18° $\underline{\Omega}$ 53'49	
				max. Earth dist.	2308 Oct 16 08:34	23° $\underline{\Omega}$ 22'01	19.36027 AU
conjunction	2300 Sep 07 23:32	15° $\eta$ 05'52	0°44'12				
minimum elong	2300 Sep 07 23:32	15° $\eta$ 05'52	0°44'11	conjunction	2308 Oct 17 01:35	23° $\underline{\Omega}$ 24'42	0°34'56
max. Earth dist.	2300 Sep 06 23:51	15° $\eta$ 02'09	19.29664 AU	minimum elong	2308 Oct 17 01:35	23° $\underline{\Omega}$ 24'42	0°34'56
retrograde	2300 Dec 25 10:09	19° $\eta$ 30'38		retrograde	2309 Feb 01 08:56	27° $\underline{\Omega}$ 46'32	
opposition	2301 Mar 08 17:36	17° $\eta$ 28'04	0°49'16	opposition	2309 Apr 16 05:29	25° $\underline{\Omega}$ 44'37	0°37'41
min. Earth dist.	2301 Mar 09 14:29	17° $\eta$ 25'47	17.29100 AU	min. Earth dist.	2309 Apr 16 19:15	25° $\underline{\Omega}$ 43'08	17.37712 AU



direct	2309 Jul 02 01:54	23° $\overline{5}$ 38'43		2316 Nov 12 04:27	0° $\overline{7}$	
max. Earth dist.	2309 Oct 21 11:06	28° $\overline{5}$ 06'29	19.39508 AU			
conjunction	2309 Oct 22 02:14	28° $\overline{5}$ 08'52	0°32'35	conjunction	2316 Nov 23 07:58	0° $\overline{7}$ 41'24 0°11'27
minimum elong	2309 Oct 22 02:14	28° $\overline{5}$ 08'52	0°32'35	minimum elong	2316 Nov 23 07:58	0° $\overline{7}$ 41'24 0°11'27
	2309 Nov 21 08:28	0° $\overline{M}$		behind sun begin	2316 Nov 23 03:09	0° $\overline{7}$ 40'40
retrograde	2310 Feb 06 06:36	2° $\overline{M}$ 30'02		behind sun end	2316 Nov 23 12:47	0° $\overline{7}$ 42'08
opposition	2310 Apr 21 07:00	0° $\overline{M}$ 28'19	0°34'57	max. Earth dist.	2316 Nov 23 03:27	0° $\overline{7}$ 40'43 19.75315 AU
min. Earth dist.	2310 Apr 21 20:24	0° $\overline{M}$ 26'52	17.41470 AU	retrograde	2317 Mar 10 09:48	4° $\overline{7}$ 56'48
	2310 May 02 08:57	30° $\overline{R}$ $\overline{5}$		opposition	2317 May 24 10:25	2° $\overline{7}$ 56'18 0°10'49
direct	2310 Jul 07 03:22	28° $\overline{5}$ 22'41		min. Earth dist.	2317 May 24 12:47	2° $\overline{7}$ 56'03 17.78329 AU
	2310 Sep 07 16:56	0° $\overline{M}$		direct	2317 Aug 09 16:48	0° $\overline{7}$ 52'58
conjunction	2310 Oct 27 02:07	2° $\overline{M}$ 51'59	0°30'02	conjunction	2317 Nov 28 01:47	5° $\overline{7}$ 13'28 0°08'02
minimum elong	2310 Oct 27 02:07	2° $\overline{M}$ 51'59	0°30'02	minimum elong	2317 Nov 28 01:46	5° $\overline{7}$ 13'28 0°08'01
max. Earth dist.	2310 Oct 26 12:10	2° $\overline{M}$ 49'47	19.43539 AU	behind sun begin	2317 Nov 27 19:53	5° $\overline{7}$ 12'35
retrograde	2311 Feb 11 06:52	7° $\overline{M}$ 12'28		behind sun end	2317 Nov 28 07:40	5° $\overline{7}$ 14'21
opposition	2311 Apr 26 08:24	5° $\overline{M}$ 10'56	0°31'59	max. Earth dist.	2317 Nov 28 00:04	5° $\overline{7}$ 13'13 19.81416 AU
min. Earth dist.	2311 Apr 26 19:21	5° $\overline{M}$ 09'46	17.45733 AU	retrograde	2318 Mar 15 02:35	9° $\overline{7}$ 27'54
direct	2311 Jul 12 07:35	3° $\overline{M}$ 05'38		opposition	2318 May 29 08:52	7° $\overline{7}$ 27'30 0°06'59
				min. Earth dist.	2318 May 29 10:05	7° $\overline{7}$ 27'23 17.84508 AU
conjunction	2311 Nov 01 01:13	7° $\overline{M}$ 33'56	0°27'17	direct	2318 Aug 14 16:16	5° $\overline{7}$ 24'29
minimum elong	2311 Nov 01 01:13	7° $\overline{M}$ 33'56	0°27'17	conjunction	2318 Dec 02 18:20	9° $\overline{7}$ 43'27 0°04'36
max. Earth dist.	2311 Oct 31 13:36	7° $\overline{M}$ 32'07	19.48028 AU	minimum elong	2318 Dec 02 18:20	9° $\overline{7}$ 43'27 0°04'37
retrograde	2312 Feb 16 03:34	11° $\overline{M}$ 53'41		behind sun begin	2318 Dec 02 11:54	9° $\overline{7}$ 42'29
opposition	2312 Apr 30 09:48	9° $\overline{M}$ 52'22	0°28'48	behind sun end	2318 Dec 03 00:47	9° $\overline{7}$ 44'25
min. Earth dist.	2312 Apr 30 20:20	9° $\overline{M}$ 51'15	17.50431 AU	max. Earth dist.	2318 Dec 02 17:27	9° $\overline{7}$ 43'20 19.87694 AU
direct	2312 Jul 16 08:40	7° $\overline{M}$ 47'23		retrograde	2319 Mar 19 20:02	13° $\overline{7}$ 56'55
conjunction	2312 Nov 04 23:30	12° $\overline{M}$ 14'36	0°24'22	opposition	2319 Jun 03 06:46	11° $\overline{7}$ 56'37 0°03'09
minimum elong	2312 Nov 04 23:30	12° $\overline{M}$ 14'36	0°24'21	min. Earth dist.	2319 Jun 03 05:50	11° $\overline{7}$ 56'43 17.90886 AU
max. Earth dist.	2312 Nov 04 12:41	12° $\overline{M}$ 12'55	19.52928 AU	direct	2319 Aug 19 14:44	9° $\overline{7}$ 53'55
	2312 Dec 22 10:02	15° $\overline{M}$		conjunction	2319 Dec 07 09:56	14° $\overline{7}$ 11'19 0°01'08
retrograde	2313 Feb 20 02:38	16° $\overline{M}$ 33'33		minimum elong	2319 Dec 07 09:56	14° $\overline{7}$ 11'19 0°01'07
	2313 Apr 24 12:32	15° $\overline{R}$ $\overline{M}$		behind sun begin	2319 Dec 07 03:22	14° $\overline{7}$ 10'20
opposition	2313 May 05 10:36	14° $\overline{M}$ 32'26	0°25'27	behind sun end	2319 Dec 07 16:30	14° $\overline{7}$ 12'18
min. Earth dist.	2313 May 05 18:44	14° $\overline{M}$ 31'34	17.55502 AU	max. Earth dist.	2319 Dec 07 12:08	14° $\overline{7}$ 11'35 19.94168 AU
direct	2313 Jul 21 12:09	12° $\overline{M}$ 27'47		retrograde	2320 Mar 23 12:02	18° $\overline{7}$ 23'50
	2313 Oct 09 13:38	15° $\overline{M}$		desc. node	2320 Apr 02 22:54	18° $\overline{7}$ 20'58
conjunction	2313 Nov 09 21:06	16° $\overline{M}$ 53'50	0°21'17	opposition	2320 Jun 07 04:00	16° $\overline{7}$ 23'38 0°00'-39
minimum elong	2313 Nov 09 21:06	16° $\overline{M}$ 53'50	0°21'18	min. Earth dist.	2320 Jun 07 01:17	16° $\overline{7}$ 23'55 17.97454 AU
max. Earth dist.	2313 Nov 09 12:46	16° $\overline{M}$ 52'32	19.58155 AU	direct	2320 Aug 23 12:36	14° $\overline{7}$ 21'16
retrograde	2314 Feb 24 22:17	21° $\overline{M}$ 11'56		conjunction	2320 Dec 11 00:33	18° $\overline{7}$ 37'06 0°-2'-23
opposition	2314 May 10 11:20	19° $\overline{M}$ 11'00	0°21'57	minimum elong	2320 Dec 11 00:32	18° $\overline{7}$ 37'06 0°02'23
min. Earth dist.	2314 May 10 18:59	19° $\overline{M}$ 10'12	17.60868 AU	behind sun begin	2320 Dec 10 17:58	18° $\overline{7}$ 36'07
direct	2314 Jul 26 12:48	17° $\overline{M}$ 06'41		behind sun end	2320 Dec 11 07:06	18° $\overline{7}$ 38'04
conjunction	2314 Nov 14 17:37	21° $\overline{M}$ 31'27	0°18'06	max. Earth dist.	2320 Dec 11 03:45	18° $\overline{7}$ 37'32 20.00838 AU
minimum elong	2314 Nov 14 17:37	21° $\overline{M}$ 31'27	0°18'06	retrograde	2321 Mar 28 03:44	22° $\overline{7}$ 48'40
max. Earth dist.	2314 Nov 14 09:51	21° $\overline{M}$ 30'15	19.63658 AU	opposition	2321 Jun 12 00:18	20° $\overline{7}$ 48'37 0°-4'-26
retrograde	2315 Mar 01 19:49	25° $\overline{M}$ 48'42		min. Earth dist.	2321 Jun 11 19:40	20° $\overline{7}$ 49'05 18.04231 AU
opposition	2315 May 15 11:31	23° $\overline{M}$ 47'55	0°18'20	direct	2321 Aug 28 07:55	18° $\overline{7}$ 46'36
min. Earth dist.	2315 May 15 16:50	23° $\overline{M}$ 47'22	17.66488 AU	conjunction	2321 Dec 15 14:23	23° $\overline{7}$ 00'53 0°-5'-46
direct	2315 Jul 31 15:34	21° $\overline{M}$ 43'57		minimum elong	2321 Dec 15 14:23	23° $\overline{7}$ 00'53 0°05'46
conjunction	2315 Nov 19 13:25	26° $\overline{M}$ 07'22	0°14'48	behind sun begin	2321 Dec 15 08:06	22° $\overline{7}$ 59'57
minimum elong	2315 Nov 19 13:25	26° $\overline{M}$ 07'22	0°14'49	behind sun end	2321 Dec 15 20:41	23° $\overline{7}$ 01'49
behind sun begin	2315 Nov 19 10:41	26° $\overline{M}$ 06'57		max. Earth dist.	2321 Dec 15 20:29	23° $\overline{7}$ 01'48 20.07700 AU
behind sun end	2315 Nov 19 16:09	26° $\overline{M}$ 07'47		retrograde	2322 Apr 01 19:01	27° $\overline{7}$ 11'32
max. Earth dist.	2315 Nov 19 08:20	26° $\overline{M}$ 06'35	19.69387 AU	opposition	2322 Jun 16 20:05	25° $\overline{7}$ 11'38 0°-8'-10
	2316 Feb 05 01:49	0° $\overline{7}$		min. Earth dist.	2322 Jun 16 13:24	25° $\overline{7}$ 12'19 18.11160 AU
retrograde	2316 Mar 05 14:06	0° $\overline{7}$ 23'41		direct	2322 Sep 02 03:44	23° $\overline{7}$ 10'02
	2316 Apr 04 19:41	30° $\overline{R}$ $\overline{M}$		conjunction	2322 Dec 20 03:08	27° $\overline{7}$ 22'47 0°-9'-4
opposition	2316 May 19 11:20	28° $\overline{M}$ 23'04	0°14'36	minimum elong	2322 Dec 20 03:07	27° $\overline{7}$ 22'47 0°09'05
min. Earth dist.	2316 May 19 15:52	28° $\overline{M}$ 22'36	17.72313 AU	behind sun begin	2322 Dec 19 21:30	27° $\overline{7}$ 21'57
direct	2316 Aug 04 15:44	26° $\overline{M}$ 19'25		behind sun end	2322 Dec 20 08:43	27° $\overline{7}$ 23'36

max. Earth dist.	2322 Dec 20 10:17	27° $\mathring{A}$ 23'51	20.14695 AU	opposition	2330 Jul 22 10:01	29° $\mathring{B}$ 13'07	0°-33'-51
	2323 Feb 04 14:41	0° $\mathring{B}$		min. Earth dist.	2330 Jul 21 16:27	29° $\mathring{B}$ 14'53	18.64723 AU
retrograde	2323 Apr 06 09:57	1° $\mathring{B}$ 32'33		direct	2330 Oct 07 08:05	27° $\mathring{B}$ 14'32	
	2323 Jun 10 11:28	30° $\mathring{R}$ $\mathring{A}$			2330 Dec 31 13:37	0° $\approx$	
opposition	2323 Jun 21 15:15	29° $\mathring{A}$ 32'49	0°-11'-49				
min. Earth dist.	2323 Jun 21 07:00	29° $\mathring{A}$ 33'40	18.18214 AU	conjunction	2331 Jan 22 08:15	1° $\approx$ 15'56	0°-31'-43
direct	2323 Sep 06 21:05	27° $\mathring{A}$ 31'38		minimum elong	2331 Jan 22 08:15	1° $\approx$ 15'56	0°31'43
	2323 Nov 25 12:24	0° $\mathring{B}$		max. Earth dist.	2331 Jan 23 01:56	1° $\approx$ 18'32	20.67530 AU
				retrograde	2331 May 10 14:29	5° $\approx$ 19'37	
conjunction	2323 Dec 24 15:15	1° $\mathring{B}$ 42'51	0°-12'-18	opposition	2331 Jul 26 23:48	3° $\approx$ 20'48	0°-36'-19
minimum elong	2323 Dec 24 15:15	1° $\mathring{B}$ 42'51	0°12'18	min. Earth dist.	2331 Jul 26 06:19	3° $\approx$ 22'33	18.70277 AU
behind sun begin	2323 Dec 24 10:49	1° $\mathring{B}$ 42'12		direct	2331 Oct 11 19:26	1° $\approx$ 22'28	
behind sun end	2323 Dec 24 19:40	1° $\mathring{B}$ 43'30					
max. Earth dist.	2323 Dec 25 01:01	1° $\mathring{B}$ 44'19	20.21779 AU	conjunction	2332 Jan 26 15:08	5° $\approx$ 22'37	0°-33'-52
retrograde	2324 Apr 10 00:33	5° $\mathring{B}$ 51'45		minimum elong	2332 Jan 26 15:07	5° $\approx$ 22'37	0°33'53
opposition	2324 Jun 25 09:35	3° $\mathring{B}$ 52'13	0°-15'-22	max. Earth dist.	2332 Jan 27 10:06	5° $\approx$ 25'24	20.72925 AU
min. Earth dist.	2324 Jun 24 23:16	3° $\mathring{B}$ 53'16	18.25304 AU	retrograde	2332 May 14 01:39	9° $\approx$ 25'40	
direct	2324 Sep 10 14:49	1° $\mathring{B}$ 51'28		opposition	2332 Jul 30 12:31	7° $\approx$ 26'51	0°-38'-35
				min. Earth dist.	2332 Jul 29 17:13	7° $\approx$ 28'47	18.75519 AU
conjunction	2324 Dec 28 02:27	6° $\mathring{B}$ 01'10	0°-15'-27	direct	2332 Oct 15 07:54	5° $\approx$ 28'45	
minimum elong	2324 Dec 28 02:27	6° $\mathring{B}$ 01'10	0°15'29				
behind sun begin	2324 Dec 28 00:22	6° $\mathring{B}$ 00'52		conjunction	2333 Jan 29 21:21	9° $\approx$ 27'45	0°-35'-49
behind sun end	2324 Dec 28 04:31	6° $\mathring{B}$ 01'29		minimum elong	2333 Jan 29 21:21	9° $\approx$ 27'45	0°35'50
max. Earth dist.	2324 Dec 28 13:07	6° $\mathring{B}$ 02'46	20.28861 AU	max. Earth dist.	2333 Jan 30 17:01	9° $\approx$ 30'37	20.78013 AU
retrograde	2325 Apr 14 14:42	10° $\mathring{B}$ 09'15		retrograde	2333 May 18 09:44	13° $\approx$ 30'15	
opposition	2325 Jun 30 03:22	8° $\mathring{B}$ 09'53	0°-18'-49	min. Earth dist.	2333 Aug 03 05:37	11° $\approx$ 33'20	18.80483 AU
min. Earth dist.	2325 Jun 29 16:02	8° $\mathring{B}$ 11'02	18.32369 AU	opposition	2333 Aug 04 00:47	11° $\approx$ 31'25	0°-40'-38
direct	2325 Sep 15 06:41	6° $\mathring{B}$ 09'33		direct	2333 Oct 19 17:03	9° $\approx$ 33'33	
conjunction	2326 Jan 01 13:03	10° $\mathring{B}$ 17'47	0°-18'-30	conjunction	2334 Feb 03 03:05	13° $\approx$ 31'27	0°-37'-35
minimum elong	2326 Jan 01 13:03	10° $\mathring{B}$ 17'47	0°18'31	minimum elong	2334 Feb 03 03:04	13° $\approx$ 31'27	0°37'37
max. Earth dist.	2326 Jan 02 01:51	10° $\mathring{B}$ 19'42	20.35875 AU	max. Earth dist.	2334 Feb 03 23:59	13° $\approx$ 34'31	20.82843 AU
retrograde	2326 Apr 19 04:23	14° $\mathring{B}$ 25'03			2334 Feb 28 23:05	15° $\approx$	
opposition	2326 Jul 04 20:23	12° $\mathring{B}$ 25'51	0°-22'-8	retrograde	2334 May 22 19:49	17° $\approx$ 33'28	
min. Earth dist.	2326 Jul 04 07:04	12° $\mathring{B}$ 27'12	18.39314 AU	opposition	2334 Aug 08 12:17	15° $\approx$ 34'39	0°-42'-28
direct	2326 Sep 19 23:13	10° $\mathring{B}$ 25'56		min. Earth dist.	2334 Aug 07 15:09	15° $\approx$ 36'46	18.85183 AU
					2334 Aug 23 04:10	15° $\mathring{R}$ $\approx$	
conjunction	2327 Jan 05 22:55	14° $\mathring{B}$ 32'44	0°-21'-26	direct	2334 Oct 24 04:14	13° $\approx$ 37'01	
minimum elong	2327 Jan 05 22:55	14° $\mathring{B}$ 32'44	0°21'28		2334 Dec 21 12:57	15° $\approx$	
max. Earth dist.	2327 Jan 06 12:27	14° $\mathring{B}$ 34'45	20.42737 AU				
retrograde	2327 Apr 23 17:15	18° $\mathring{B}$ 39'14		conjunction	2335 Feb 07 08:28	17° $\approx$ 33'57	0°-39'-10
opposition	2327 Jul 09 12:57	16° $\mathring{B}$ 40'09	0°-25'-18	minimum elong	2335 Feb 07 08:27	17° $\approx$ 33'57	0°39'11
min. Earth dist.	2327 Jul 08 23:05	16° $\mathring{B}$ 41'33	18.46094 AU	max. Earth dist.	2335 Feb 08 06:04	17° $\approx$ 37'06	20.87407 AU
direct	2327 Sep 24 13:41	14° $\mathring{B}$ 40'38		retrograde	2335 May 27 03:44	21° $\approx$ 35'33	
				opposition	2335 Aug 12 23:21	19° $\approx$ 36'45	0°-44'-5
conjunction	2328 Jan 10 08:10	18° $\mathring{B}$ 46'00	0°-24'-14	min. Earth dist.	2335 Aug 12 02:26	19° $\approx$ 38'50	18.89629 AU
minimum elong	2328 Jan 10 08:10	18° $\mathring{B}$ 46'00	0°24'15	direct	2335 Oct 28 11:42	17° $\approx$ 39'22	
max. Earth dist.	2328 Jan 10 23:25	18° $\mathring{B}$ 48'17	20.49397 AU				
retrograde	2328 Apr 27 06:16	22° $\mathring{B}$ 51'45		conjunction	2336 Feb 11 13:31	21° $\approx$ 35'24	0°-40'-32
opposition	2328 Jul 13 04:40	20° $\mathring{B}$ 52'48	0°-28'-20	minimum elong	2336 Feb 11 13:31	21° $\approx$ 35'24	0°40'33
min. Earth dist.	2328 Jul 12 12:56	20° $\mathring{B}$ 54'23	18.52617 AU	max. Earth dist.	2336 Feb 12 12:05	21° $\approx$ 38'40	20.91716 AU
direct	2328 Sep 28 05:02	18° $\mathring{B}$ 53'38		retrograde	2336 May 30 13:10	25° $\approx$ 36'38	
				min. Earth dist.	2336 Aug 15 11:03	23° $\approx$ 40'09	18.93786 AU
conjunction	2329 Jan 13 16:50	22° $\mathring{B}$ 57'38	0°-26'-53	opposition	2336 Aug 16 09:41	23° $\approx$ 37'54	0°-45'-29
minimum elong	2329 Jan 13 16:50	22° $\mathring{B}$ 57'38	0°26'54	direct	2336 Oct 31 21:14	21° $\approx$ 40'45	
max. Earth dist.	2329 Jan 14 08:34	22° $\mathring{B}$ 59'58	20.55765 AU				
retrograde	2329 May 01 17:05	27° $\mathring{B}$ 02'40		conjunction	2337 Feb 14 18:19	25° $\approx$ 35'59	0°-41'-42
opposition	2329 Jul 17 19:40	25° $\mathring{B}$ 03'47	0°-31'-11	minimum elong	2337 Feb 14 18:19	25° $\approx$ 35'59	0°41'43
min. Earth dist.	2329 Jul 17 03:55	25° $\mathring{B}$ 05'22	18.58841 AU	max. Earth dist.	2337 Feb 15 17:20	25° $\approx$ 39'19	20.95706 AU
direct	2329 Oct 02 18:08	23° $\mathring{B}$ 04'56		retrograde	2337 Jun 03 20:49	29° $\approx$ 36'56	
				opposition	2337 Aug 20 19:38	27° $\approx$ 38'15	0°-46'-39
conjunction	2330 Jan 18 00:58	27° $\mathring{B}$ 07'37	0°-29'-23	min. Earth dist.	2337 Aug 19 21:34	27° $\approx$ 40'27	18.97619 AU
minimum elong	2330 Jan 18 00:58	27° $\mathring{B}$ 07'37	0°29'24	direct	2337 Nov 05 03:41	25° $\approx$ 41'21	
max. Earth dist.	2330 Jan 18 18:01	27° $\mathring{B}$ 10'08	20.61822 AU				
	2330 Mar 12 19:32	0° $\approx$		conjunction	2338 Feb 18 23:00	29° $\approx$ 35'52	0°-42'-40
retrograde	2330 May 06 05:22	1° $\approx$ 11'57		minimum elong	2338 Feb 18 23:00	29° $\approx$ 35'52	0°42'40
	2330 Jul 02 10:13	30° $\mathring{R}$ $\mathring{B}$		max. Earth dist.	2338 Feb 19 22:39	29° $\approx$ 39'17	20.99368 AU

	2338 Feb 25 22:08	0°♄		conjunction	2346 Mar 22 12:27	1°♅20'50	0°-42'-48
retrograde	2338 Jun 08 05:43	3°♄36'36		minimum elong	2346 Mar 22 12:27	1°♅20'50	0°42'50
min. Earth dist.	2338 Aug 24 05:38	1°♄40'19	19.01090 AU	max. Earth dist.	2346 Mar 23 10:07	1°♅23'55	21.11026 AU
opposition	2338 Aug 25 05:07	1°♄37'58	0°-47'-35	retrograde	2346 Jul 10 19:47	5°♅21'31	
	2338 Oct 12 17:50	30°♄		opposition	2346 Sep 26 21:12	3°♅22'26	0°-46'-47
direct	2338 Nov 09 11:48	29°♄41'18		min. Earth dist.	2346 Sep 26 00:47	3°♅24'29	19.10684 AU
	2338 Dec 06 13:11	0°♄		direct	2346 Dec 11 08:43	1°♅26'15	
conjunction	2339 Feb 23 03:25	3°♄35'12	0°-43'-25	conjunction	2347 Mar 26 17:31	5°♅17'55	0°-41'-53
minimum elong	2339 Feb 23 03:25	3°♄35'12	0°43'26	minimum elong	2347 Mar 26 17:32	5°♅17'55	0°41'53
max. Earth dist.	2339 Feb 24 03:19	3°♄38'38	21.02632 AU	max. Earth dist.	2347 Mar 27 14:41	5°♅20'55	21.10158 AU
retrograde	2339 Jun 12 13:11	7°♄35'47		retrograde	2347 Jul 15 02:19	9°♅18'49	
opposition	2339 Aug 29 14:23	5°♄37'11	0°-48'-18	min. Earth dist.	2347 Sep 30 09:10	7°♅21'29	19.09609 AU
min. Earth dist.	2339 Aug 28 15:51	5°♄39'26	19.04147 AU	opposition	2347 Oct 01 04:05	7°♅19'35	0°-45'-39
direct	2339 Nov 13 17:21	3°♄40'44		direct	2347 Dec 15 12:58	5°♅23'19	
conjunction	2340 Feb 27 08:03	7°♄34'05	0°-43'-58	conjunction	2348 Mar 29 23:00	9°♅15'05	0°-40'-45
minimum elong	2340 Feb 27 08:03	7°♄34'05	0°43'58	minimum elong	2348 Mar 29 23:01	9°♅15'05	0°40'46
max. Earth dist.	2340 Feb 28 08:08	7°♄37'33	21.05465 AU	max. Earth dist.	2348 Mar 30 19:35	9°♅18'01	21.08891 AU
retrograde	2340 Jun 15 21:49	11°♄34'33		retrograde	2348 Jul 18 11:28	13°♅16'16	
opposition	2340 Sep 01 22:56	9°♄35'59	0°-48'-47	opposition	2348 Oct 04 10:33	11°♅16'55	0°-44'-17
min. Earth dist.	2340 Aug 31 23:30	9°♄38'19	19.06735 AU	min. Earth dist.	2348 Oct 03 15:20	11°♅18'51	19.08143 AU
direct	2340 Nov 17 00:34	7°♄39'42		direct	2348 Dec 18 18:07	9°♅20'33	
conjunction	2341 Mar 02 12:37	11°♄32'36	0°-44'-18	conjunction	2349 Apr 03 04:44	13°♅12'33	0°-39'-26
minimum elong	2341 Mar 02 12:37	11°♄32'36	0°44'20	minimum elong	2349 Apr 03 04:44	13°♅12'33	0°39'26
max. Earth dist.	2341 Mar 03 12:27	11°♄36'01	21.07786 AU	max. Earth dist.	2349 Apr 04 00:40	13°♅15'23	21.07227 AU
retrograde	2341 Jun 20 04:49	15°♄33'00		retrograde	2349 Jul 22 18:22	17°♅14'05	
min. Earth dist.	2341 Sep 05 09:24	13°♄36'39	19.08794 AU	opposition	2349 Oct 08 17:16	15°♅14'36	0°-42'-44
opposition	2341 Sep 06 07:29	13°♄34'27	0°-49'-2	min. Earth dist.	2349 Oct 07 23:35	15°♅16'24	19.06289 AU
direct	2341 Nov 21 05:19	11°♄38'19		direct	2349 Dec 22 21:57	13°♅18'11	
conjunction	2342 Mar 06 17:11	15°♄30'49	0°-44'-26	conjunction	2350 Apr 07 10:46	17°♅10'29	0°-37'-55
minimum elong	2342 Mar 06 17:11	15°♄30'49	0°44'27	minimum elong	2350 Apr 07 10:46	17°♅10'29	0°37'56
max. Earth dist.	2342 Mar 07 16:49	15°♄34'12	21.09569 AU	max. Earth dist.	2350 Apr 08 06:00	17°♅13'13	21.05199 AU
retrograde	2342 Jun 24 13:40	19°♄31'12		retrograde	2350 Jul 27 04:29	21°♅12'27	
opposition	2342 Sep 10 15:38	17°♄32'36	0°-49'-3	opposition	2350 Oct 12 23:52	19°♅12'52	0°-40'-57
min. Earth dist.	2342 Sep 09 16:55	17°♄34'52	19.10284 AU	min. Earth dist.	2350 Oct 12 06:02	19°♅14'40	19.04065 AU
direct	2342 Nov 25 12:10	15°♄36'33		direct	2350 Dec 27 03:25	17°♅16'20	
conjunction	2343 Mar 10 21:54	19°♄28'44	0°-44'-21	conjunction	2351 Apr 11 17:25	21°♅09'04	0°-36'-13
minimum elong	2343 Mar 10 21:54	19°♄28'44	0°44'21	minimum elong	2351 Apr 11 17:25	21°♅09'04	0°36'15
max. Earth dist.	2343 Mar 11 20:59	19°♄32'02	21.10760 AU	max. Earth dist.	2351 Apr 12 11:50	21°♅11'42	21.02779 AU
retrograde	2343 Jun 28 20:04	23°♄29'07		retrograde	2351 Jul 31 11:59	25°♅11'31	
opposition	2343 Sep 14 23:31	21°♄30'27	0°-48'-50	opposition	2351 Oct 17 06:32	23°♅11'52	0°-38'-59
min. Earth dist.	2343 Sep 14 02:24	21°♄32'34	19.11186 AU	min. Earth dist.	2351 Oct 16 14:32	23°♅13'29	19.01449 AU
direct	2343 Nov 29 16:39	19°♄34'25		direct	2351 Dec 31 06:54	21°♅15'15	
conjunction	2344 Mar 14 02:43	23°♄26'21	0°-44'-3	conjunction	2352 Apr 15 00:42	25°♅08'31	0°-34'-21
minimum elong	2344 Mar 14 02:43	23°♄26'21	0°44'04	minimum elong	2352 Apr 15 00:42	25°♅08'31	0°34'22
max. Earth dist.	2344 Mar 15 01:20	23°♄29'34	21.11384 AU	max. Earth dist.	2352 Apr 15 17:59	25°♅10'59	20.99977 AU
retrograde	2344 Jul 02 04:54	27°♄26'47		retrograde	2352 Aug 03 22:58	29°♅11'31	
min. Earth dist.	2344 Sep 17 09:28	25°♄30'09	19.11521 AU	opposition	2352 Oct 20 13:18	27°♅11'47	0°-36'-49
opposition	2344 Sep 18 06:58	25°♄28'00	0°-48'-23	min. Earth dist.	2352 Oct 19 21:35	27°♅13'23	18.98430 AU
direct	2344 Dec 02 22:50	23°♄31'56		direct	2353 Jan 03 12:51	25°♅15'04	
conjunction	2345 Mar 18 07:29	27°♄23'41	0°-43'-32	conjunction	2353 Apr 19 08:26	29°♅08'58	0°-32'-18
minimum elong	2345 Mar 18 07:29	27°♄23'41	0°43'32	minimum elong	2353 Apr 19 08:26	29°♅08'58	0°32'20
max. Earth dist.	2345 Mar 19 05:33	27°♄26'50	21.11444 AU	max. Earth dist.	2353 Apr 20 00:39	29°♅11'17	20.96737 AU
	2345 May 06 22:17	0°♅			2353 May 04 07:43	0°♄	
retrograde	2345 Jul 06 11:01	1°♅24'13		retrograde	2353 Aug 08 07:35	3°♄12'36	
	2345 Sep 07 22:08	30°♄		opposition	2353 Oct 24 20:23	1°♄12'47	0°-34'-28
opposition	2345 Sep 22 14:15	29°♄25'18	0°-47'-42	min. Earth dist.	2353 Oct 24 06:46	1°♄14'10	18.94967 AU
min. Earth dist.	2345 Sep 21 18:17	29°♄27'18	19.11330 AU		2353 Nov 25 23:16	30°♄	
direct	2345 Dec 07 03:18	27°♄29'11		direct	2354 Jan 07 16:45	29°♅15'56	
	2346 Feb 26 10:48	0°♅			2354 Feb 18 10:48	0°♄	

conjunction	2354 Apr 23 17:00	3°♄10'34	0°-30'-5	behind sun end	2361 May 23 05:40	1°♄56'41	
minimum elong	2354 Apr 23 17:00	3°♄10'34	0°30'06	max. Earth dist.	2361 May 23 03:41	1°♄56'23	20.55058 AU
max. Earth dist.	2354 Apr 24 07:39	3°♄12'39	20.93059 AU	retrograde	2361 Sep 11 05:02	6°♄05'31	
retrograde	2354 Aug 12 19:10	7°♄14'50		opposition	2361 Nov 26 14:09	4°♄04'15	0°-10'00
opposition	2354 Oct 29 03:34	5°♄14'55	0°-31'-56	min. Earth dist.	2361 Nov 26 12:18	4°♄04'27	18.51793 AU
min. Earth dist.	2354 Oct 28 14:39	5°♄16'14	18.91045 AU	direct	2362 Feb 09 04:17	2°♄04'58	
direct	2355 Jan 11 23:23	3°♄17'54					
conjunction	2355 Apr 28 02:18	7°♄13'21	0°-27'-43	conjunction	2362 May 27 14:54	6°♄07'53	0°-7'-31
minimum elong	2355 Apr 28 02:18	7°♄13'21	0°27'44	minimum elong	2362 May 27 14:54	6°♄07'53	0°07'32
max. Earth dist.	2355 Apr 28 15:27	7°♄15'13	20.88883 AU	behind sun begin	2362 May 27 08:48	6°♄07'01	
retrograde	2355 Aug 17 05:15	11°♄18'19		behind sun end	2362 May 27 21:00	6°♄08'45	
opposition	2355 Nov 02 11:10	9°♄18'16	0°-29'-13	max. Earth dist.	2362 May 27 15:50	6°♄08'00	20.48545 AU
min. Earth dist.	2355 Nov 02 00:35	9°♄19'21	18.86614 AU	retrograde	2362 Sep 15 19:08	10°♄18'20	
direct	2356 Jan 16 04:32	7°♄21'02		opposition	2362 Nov 30 23:56	8°♄16'52	0°-6'-27
				min. Earth dist.	2362 Nov 30 23:04	8°♄16'57	18.45230 AU
				direct	2363 Feb 13 14:35	6°♄17'11	
conjunction	2356 May 01 12:19	11°♄17'20	0°-25'-11	conjunction	2363 Jun 01 06:17	10°♄21'28	0°-4'-17
minimum elong	2356 May 01 12:19	11°♄17'20	0°25'11	minimum elong	2363 Jun 01 06:16	10°♄21'28	0°04'18
max. Earth dist.	2356 May 01 23:25	11°♄18'55	20.84216 AU	behind sun begin	2363 May 31 23:38	10°♄20'31	
	2356 Jul 20 23:34	15°♄		behind sun end	2363 Jun 01 12:54	10°♄22'25	
retrograde	2356 Aug 20 17:06	15°♄23'00		max. Earth dist.	2363 Jun 01 06:19	10°♄21'28	20.41929 AU
	2356 Sep 20 16:42	15°♄		retrograde	2363 Sep 20 08:37	14°♄32'48	
opposition	2356 Nov 05 18:49	13°♄22'48	0°-26'-21	opposition	2363 Dec 05 10:23	12°♄31'11	0°-2'-50
min. Earth dist.	2356 Nov 05 09:09	13°♄23'47	18.81696 AU	min. Earth dist.	2363 Dec 05 11:09	12°♄31'06	18.38577 AU
direct	2357 Jan 19 11:44	11°♄25'18		direct	2364 Feb 18 00:26	10°♄31'08	
	2357 Apr 29 10:14	15°♄					
conjunction	2357 May 05 22:58	15°♄22'32	0°-22'-30	conjunction	2364 Jun 04 22:19	14°♄36'50	0°00'-58
minimum elong	2357 May 05 22:58	15°♄22'32	0°22'31	minimum elong	2364 Jun 04 22:21	14°♄36'50	0°00'59
max. Earth dist.	2357 May 06 08:34	15°♄23'54	20.79065 AU	behind sun begin	2364 Jun 04 15:36	14°♄35'52	
retrograde	2357 Aug 25 03:58	19°♄28'55		behind sun end	2364 Jun 05 05:05	14°♄37'48	
opposition	2357 Nov 10 02:56	17°♄28'31	0°-23'-19	max. Earth dist.	2364 Jun 04 19:59	14°♄36'33	20.35261 AU
min. Earth dist.	2357 Nov 09 19:28	17°♄29'17	18.76326 AU	asc. node	2364 Sep 19 17:15	18°♄48'37	
direct	2358 Jan 23 18:29	15°♄30'43		retrograde	2364 Sep 24 00:20	18°♄49'06	
				opposition	2364 Dec 08 21:20	16°♄47'21	0°00'48
conjunction	2358 May 10 10:10	19°♄28'56	0°-19'-42	min. Earth dist.	2364 Dec 08 23:15	16°♄47'08	18.31891 AU
minimum elong	2358 May 10 10:10	19°♄28'56	0°19'44	direct	2365 Feb 21 12:08	14°♄46'56	
max. Earth dist.	2358 May 10 17:44	19°♄30'01	20.73514 AU				
retrograde	2358 Aug 29 16:14	23°♄36'05		conjunction	2365 Jun 09 15:31	18°♄54'08	0°02'25
opposition	2358 Nov 14 11:13	21°♄35'27	0°-20'-10	minimum elong	2365 Jun 09 15:31	18°♄54'08	0°02'24
min. Earth dist.	2358 Nov 14 04:41	21°♄36'08	18.70586 AU	behind sun begin	2365 Jun 09 08:46	18°♄53'10	
direct	2359 Jan 28 02:14	19°♄37'17		behind sun end	2365 Jun 09 22:16	18°♄55'06	
				max. Earth dist.	2365 Jun 09 12:27	18°♄53'44	20.28553 AU
conjunction	2359 May 14 22:18	23°♄36'35	0°-16'-47	retrograde	2365 Sep 28 15:29	23°♄07'19	
minimum elong	2359 May 14 22:18	23°♄36'35	0°16'48	opposition	2365 Dec 13 08:57	21°♄05'29	0°04'28
max. Earth dist.	2359 May 15 04:33	23°♄37'28	20.67606 AU	min. Earth dist.	2365 Dec 13 12:26	21°♄05'06	18.25167 AU
retrograde	2359 Sep 03 03:47	27°♄44'30		direct	2366 Feb 25 23:20	19°♄04'44	
opposition	2359 Nov 18 19:44	25°♄43'40	0°-16'-53				
min. Earth dist.	2359 Nov 18 15:16	25°♄44'08	18.64532 AU	conjunction	2366 Jun 14 09:32	23°♄13'27	0°05'44
direct	2360 Feb 01 10:26	23°♄45'08		minimum elong	2366 Jun 14 09:32	23°♄13'26	0°05'45
				behind sun begin	2366 Jun 14 03:04	23°♄12'31	
conjunction	2360 May 18 11:05	27°♄45'34	0°-13'-46	behind sun end	2366 Jun 14 16:00	23°♄14'22	
minimum elong	2360 May 18 11:05	27°♄45'34	0°13'48	max. Earth dist.	2366 Jun 14 03:46	23°♄12'37	20.21823 AU
behind sun begin	2360 May 18 07:40	27°♄45'05		retrograde	2366 Oct 03 08:41	27°♄27'36	
behind sun end	2360 May 18 14:30	27°♄46'03		opposition	2366 Dec 17 21:16	25°♄25'40	0°08'09
max. Earth dist.	2360 May 18 15:13	27°♄46'09	20.61439 AU	min. Earth dist.	2366 Dec 18 02:20	25°♄25'08	18.18415 AU
	2360 Jun 28 04:26	0°♄		direct	2367 Mar 02 12:18	23°♄24'34	
retrograde	2360 Sep 06 16:35	1°♄54'18					
	2360 Nov 19 11:42	30°♄		conjunction	2367 Jun 19 04:52	27°♄34'52	0°09'02
opposition	2360 Nov 22 04:41	29°♄53'13	0°-13'-29	minimum elong	2367 Jun 19 04:51	27°♄34'52	0°09'02
min. Earth dist.	2360 Nov 22 01:06	29°♄53'36	18.58254 AU	behind sun begin	2367 Jun 18 23:08	27°♄34'02	
direct	2361 Feb 04 19:15	27°♄54'18		behind sun end	2367 Jun 19 10:35	27°♄35'42	
	2361 Apr 18 11:10	0°♄		max. Earth dist.	2367 Jun 18 22:12	27°♄33'54	20.15032 AU
					2367 Aug 01 09:08	0°♄	
conjunction	2361 May 23 00:32	1°♄55'57	0°-10'-41	retrograde	2367 Oct 08 02:00	1°♄49'58	
minimum elong	2361 May 23 00:32	1°♄55'57	0°10'41		2367 Dec 17 17:13	30°♄	
behind sun begin	2361 May 22 19:24	1°♄55'13		opposition	2367 Dec 22 10:13	29°♄47'57	0°11'50

min. Earth dist.	2367 Dec 22 16:55	29°II47'14	18.11592 AU	conjunction	2375 Jul 26 21:26	3°Ω36'15	0°32'44
direct	2368 Mar 06 01:33	27°II46'29		minimum elong	2375 Jul 26 21:26	3°Ω36'15	0°32'44
	2368 May 19 16:05	0°☿		max. Earth dist.	2375 Jul 26 01:18	3°Ω33'10	19.61660 AU
				retrograde	2375 Nov 13 20:03	7°Ω57'53	
conjunction	2368 Jun 23 00:58	1°☿58'23	0°12'19	opposition	2376 Jan 26 19:59	5°Ω54'54	0°37'44
minimum elong	2368 Jun 23 00:58	1°☿58'23	0°12'19	min. Earth dist.	2376 Jan 27 12:54	5°Ω53'02	17.58819 AU
behind sun begin	2368 Jun 22 20:36	1°☿57'45		direct	2376 Apr 10 21:24	3°Ω50'08	
behind sun end	2368 Jun 23 05:20	1°☿59'01					
max. Earth dist.	2368 Jun 22 15:11	1°☿56'56	20.08180 AU	conjunction	2376 Jul 30 23:37	8°Ω14'17	0°35'01
retrograde	2368 Oct 11 20:15	6°☿14'25		minimum elong	2376 Jul 30 23:37	8°Ω14'17	0°35'01
opposition	2368 Dec 26 00:03	4°☿12'18	0°15'28	max. Earth dist.	2376 Jul 30 01:58	8°Ω10'58	19.56060 AU
min. Earth dist.	2368 Dec 26 08:34	4°☿11'23	18.04716 AU	retrograde	2376 Nov 17 17:29	12°Ω36'34	
direct	2369 Mar 10 15:59	2°☿10'26		opposition	2377 Jan 30 15:30	10°Ω33'31	0°40'10
				min. Earth dist.	2377 Jan 31 09:57	10°Ω31'30	17.53464 AU
conjunction	2369 Jun 27 22:03	6°☿23'56	0°15'33	direct	2377 Apr 15 18:11	8°Ω28'26	
minimum elong	2369 Jun 27 22:03	6°☿23'56	0°15'33	max. Earth dist.	2377 Aug 04 04:27	12°Ω50'35	19.50945 AU
behind sun begin	2369 Jun 27 20:57	6°☿23'46					
behind sun end	2369 Jun 27 23:08	6°☿24'05		conjunction	2377 Aug 05 02:20	12°Ω53'57	0°37'05
max. Earth dist.	2369 Jun 27 11:26	6°☿22'21	20.01266 AU	minimum elong	2377 Aug 05 02:20	12°Ω53'57	0°37'04
retrograde	2369 Oct 16 15:25	10°☿40'53			2377 Sep 09 11:28	15°Ω	
opposition	2369 Dec 30 14:36	8°☿38'38	0°19'02	retrograde	2377 Nov 22 16:51	17°Ω16'50	
min. Earth dist.	2369 Dec 31 00:29	8°☿37'35	17.97780 AU	opposition	2378 Feb 04 11:36	15°Ω13'45	0°42'21
direct	2370 Mar 15 07:31	6°☿36'23		min. Earth dist.	2378 Feb 05 05:38	15°Ω11'47	17.48593 AU
					2378 Feb 09 17:25	15°♄Ω	
conjunction	2370 Jul 02 20:01	10°☿51'27	0°18'43	direct	2378 Apr 20 17:12	13°Ω08'25	
minimum elong	2370 Jul 02 20:01	10°☿51'27	0°18'43		2378 Jun 26 18:03	15°Ω	
max. Earth dist.	2370 Jul 02 06:14	10°☿49'23	19.94327 AU	max. Earth dist.	2378 Aug 09 07:00	17°Ω31'42	19.46319 AU
retrograde	2370 Oct 21 10:26	15°☿09'17					
opposition	2371 Jan 04 05:44	13°☿06'54	0°22'31	conjunction	2378 Aug 10 05:44	17°Ω35'13	0°38'55
min. Earth dist.	2371 Jan 04 17:38	13°☿05'37	17.90856 AU	minimum elong	2378 Aug 10 05:44	17°Ω35'13	0°38'55
direct	2371 Mar 19 23:36	11°☿04'11		retrograde	2378 Nov 27 15:08	21°Ω58'37	
				opposition	2379 Feb 09 08:29	19°Ω55'36	0°44'16
conjunction	2371 Jul 07 19:01	15°☿20'52	0°21'48	min. Earth dist.	2379 Feb 10 04:04	19°Ω53'27	17.44230 AU
minimum elong	2371 Jul 07 19:01	15°☿20'52	0°21'48	direct	2379 Apr 25 15:51	17°Ω50'02	
max. Earth dist.	2371 Jul 07 04:32	15°☿18'41	19.87420 AU	max. Earth dist.	2379 Aug 14 10:19	22°Ω14'26	19.42213 AU
retrograde	2371 Oct 26 07:04	19°☿39'31					
opposition	2372 Jan 08 21:37	17°☿37'01	0°25'53	conjunction	2379 Aug 15 09:36	22°Ω18'03	0°40'30
min. Earth dist.	2372 Jan 09 10:29	17°☿35'37	17.83990 AU	minimum elong	2379 Aug 15 09:36	22°Ω18'03	0°40'30
direct	2372 Mar 23 16:56	15°☿33'53		retrograde	2379 Dec 02 15:41	26°Ω41'56	
				opposition	2380 Feb 14 06:03	24°Ω38'57	0°45'55
conjunction	2372 Jul 11 18:25	19°☿52'06	0°24'46	min. Earth dist.	2380 Feb 15 01:08	24°Ω36'52	17.40370 AU
minimum elong	2372 Jul 11 18:25	19°☿52'06	0°24'45	direct	2380 Apr 29 16:48	22°Ω33'14	
max. Earth dist.	2372 Jul 11 01:11	19°☿49'30	19.80617 AU				
retrograde	2372 Oct 30 03:01	24°☿11'35		conjunction	2380 Aug 19 13:46	27°Ω02'20	0°41'49
opposition	2373 Jan 12 14:14	22°☿08'55	0°29'07	minimum elong	2380 Aug 19 13:46	27°Ω02'20	0°41'49
min. Earth dist.	2373 Jan 13 04:59	22°☿07'19	17.77283 AU	max. Earth dist.	2380 Aug 18 14:21	26°Ω58'42	19.38584 AU
direct	2373 Mar 28 10:38	20°☿05'20			2380 Oct 10 08:08	0°♄	
				retrograde	2380 Dec 06 15:00	1°♄26'37	
conjunction	2373 Jul 16 18:48	24°☿25'07	0°27'35		2381 Feb 04 04:36	30°♄Ω	
minimum elong	2373 Jul 16 18:48	24°☿25'07	0°27'35	opposition	2381 Feb 18 04:29	29°Ω23'44	0°47'14
max. Earth dist.	2373 Jul 16 01:12	24°☿22'26	19.74010 AU	min. Earth dist.	2381 Feb 19 01:00	29°Ω21'29	17.36987 AU
retrograde	2373 Nov 04 00:40	28°☿45'20		direct	2381 May 04 16:42	27°Ω17'50	
opposition	2374 Jan 17 07:22	26°☿42'34	0°32'11		2381 Jul 26 04:13	0°♄	
min. Earth dist.	2374 Jan 17 22:34	26°☿40'54	17.70800 AU				
direct	2374 Apr 02 05:19	24°☿38'34		conjunction	2381 Aug 24 18:21	1°♄47'55	0°42'52
				minimum elong	2381 Aug 24 18:21	1°♄47'55	0°42'53
conjunction	2374 Jul 21 19:45	28°☿59'50	0°30'15	max. Earth dist.	2381 Aug 23 17:55	1°♄44'07	19.35433 AU
minimum elong	2374 Jul 21 19:45	28°☿59'50	0°30'15	retrograde	2381 Dec 11 16:53	6°♄12'31	
max. Earth dist.	2374 Jul 20 23:52	28°☿56'49	19.67664 AU	opposition	2382 Feb 23 03:18	4°♄09'41	0°48'16
	2374 Aug 07 09:08	0°Ω		min. Earth dist.	2382 Feb 23 23:23	4°♄07'29	17.34064 AU
retrograde	2374 Nov 08 21:39	3°Ω20'48		direct	2382 May 09 19:10	2°♄03'38	
opposition	2375 Jan 22 01:23	1°Ω17'54	0°35'04				
min. Earth dist.	2375 Jan 22 18:23	1°Ω16'03	17.64626 AU	conjunction	2382 Aug 29 23:21	6°♄34'35	0°43'38
	2375 Feb 23 05:54	30°♄☿		minimum elong	2382 Aug 29 23:21	6°♄34'35	0°43'37
direct	2375 Apr 07 00:38	29°☿13'29		max. Earth dist.	2382 Aug 28 23:15	6°♄30'48	19.32722 AU
	2375 May 19 05:23	0°Ω		retrograde	2382 Dec 16 17:03	10°♄59'22	
				opposition	2383 Feb 28 03:01	8°♄56'36	0°48'57

min. Earth dist.	2383 Mar 01 00:15	8° $\overline{\text{M}}$ 54'16	17.31579 AU	min. Earth dist.	2391 Apr 08 05:07	17° $\underline{\text{A}}$ 16'53	17.30681 AU
direct	2383 May 14 20:08	6° $\overline{\text{M}}$ 50'25		direct	2391 Jun 23 04:01	15° $\underline{\text{A}}$ 12'20	
max. Earth dist.	2383 Sep 03 02:57	11° $\overline{\text{M}}$ 18'05	19.30465 AU				
conjunction	2383 Sep 04 04:12	11° $\overline{\text{M}}$ 22'03	0°44'05	conjunction	2391 Oct 13 10:45	19° $\underline{\text{A}}$ 44'05	0°36'49
minimum elong	2383 Sep 04 04:12	11° $\overline{\text{M}}$ 22'03	0°44'05	minimum elong	2391 Oct 13 10:45	19° $\underline{\text{A}}$ 44'05	0°36'50
retrograde	2383 Dec 21 19:12	15° $\overline{\text{M}}$ 46'57		max. Earth dist.	2391 Oct 12 16:21	19° $\underline{\text{A}}$ 41'11	19.31922 AU
opposition	2384 Mar 04 03:07	13° $\overline{\text{M}}$ 44'14	0°49'18	retrograde	2392 Jan 28 19:50	24° $\underline{\text{A}}$ 06'46	
min. Earth dist.	2384 Mar 04 23:50	13° $\overline{\text{M}}$ 41'57	17.29555 AU	opposition	2392 Apr 11 14:37	22° $\underline{\text{A}}$ 04'38	0°39'55
direct	2384 May 18 23:26	11° $\overline{\text{M}}$ 37'55		min. Earth dist.	2392 Apr 12 06:26	22° $\underline{\text{A}}$ 02'56	17.33376 AU
max. Earth dist.	2384 Sep 07 09:04	16° $\overline{\text{M}}$ 06'18	19.28671 AU	direct	2392 Jun 27 07:12	19° $\underline{\text{A}}$ 58'31	
conjunction	2384 Sep 08 09:15	16° $\overline{\text{M}}$ 10'06	0°44'14	conjunction	2392 Oct 17 12:16	24° $\underline{\text{A}}$ 29'40	0°34'40
minimum elong	2384 Sep 08 09:15	16° $\overline{\text{M}}$ 10'06	0°44'14	minimum elong	2392 Oct 17 12:16	24° $\underline{\text{A}}$ 29'40	0°34'40
retrograde	2384 Dec 25 19:38	20° $\overline{\text{M}}$ 35'00		max. Earth dist.	2392 Oct 16 19:39	24° $\underline{\text{A}}$ 27'03	19.34934 AU
opposition	2385 Mar 09 03:44	18° $\overline{\text{M}}$ 32'19	0°49'18	retrograde	2393 Feb 01 20:04	28° $\underline{\text{A}}$ 51'47	
min. Earth dist.	2385 Mar 10 01:01	18° $\overline{\text{M}}$ 29'59	17.28005 AU	opposition	2393 Apr 16 16:16	26° $\underline{\text{A}}$ 49'52	0°37'23
direct	2385 May 24 01:39	16° $\overline{\text{M}}$ 25'54		min. Earth dist.	2393 Apr 17 05:59	26° $\underline{\text{A}}$ 48'23	17.36664 AU
conjunction	2385 Sep 13 13:59	20° $\overline{\text{M}}$ 58'28	0°44'04	direct	2393 Jul 02 12:05	24° $\underline{\text{A}}$ 44'00	
minimum elong	2385 Sep 13 13:59	20° $\overline{\text{M}}$ 58'28	0°44'04	conjunction	2393 Oct 22 13:11	29° $\underline{\text{A}}$ 14'27	0°32'17
max. Earth dist.	2385 Sep 12 12:51	20° $\overline{\text{M}}$ 54'30	19.27379 AU	minimum elong	2393 Oct 22 13:11	29° $\underline{\text{A}}$ 14'27	0°32'18
retrograde	2385 Dec 30 21:06	25° $\overline{\text{M}}$ 23'18		max. Earth dist.	2393 Oct 21 22:07	29° $\underline{\text{A}}$ 12'05	19.38498 AU
opposition	2386 Mar 14 04:39	23° $\overline{\text{M}}$ 20'39	0°48'57		2393 Nov 03 15:05	0° $\overline{\text{M}}$	
min. Earth dist.	2386 Mar 15 01:24	23° $\overline{\text{M}}$ 18'22	17.26971 AU	retrograde	2394 Feb 06 18:19	3° $\overline{\text{M}}$ 35'56	
direct	2386 May 29 05:35	21° $\overline{\text{M}}$ 14'08		opposition	2394 Apr 21 18:08	1° $\overline{\text{M}}$ 34'14	0°34'36
conjunction	2386 Sep 18 18:43	25° $\overline{\text{M}}$ 46'56	0°43'36	min. Earth dist.	2394 Apr 22 07:30	1° $\overline{\text{M}}$ 32'48	17.40484 AU
minimum elong	2386 Sep 18 18:43	25° $\overline{\text{M}}$ 46'56	0°43'37		2394 Jun 02 04:56	30° $\overline{\text{R}}$ $\underline{\text{A}}$	
max. Earth dist.	2386 Sep 17 19:09	25° $\overline{\text{M}}$ 43'13	19.26608 AU	direct	2394 Jul 07 14:27	29° $\underline{\text{A}}$ 28'40	
retrograde	2386 Dec 15 15:28	0° $\underline{\text{A}}$			2394 Aug 11 07:03	0° $\overline{\text{M}}$	
	2387 Jan 04 21:21	0° $\underline{\text{A}}$ 11'35		conjunction	2394 Oct 27 13:17	3° $\overline{\text{M}}$ 58'16	0°29'42
	2387 Jan 25 07:08	30° $\overline{\text{R}}$ $\overline{\text{M}}$		minimum elong	2394 Oct 27 13:17	3° $\overline{\text{M}}$ 58'16	0°29'42
opposition	2387 Mar 19 05:54	28° $\overline{\text{M}}$ 08'58	0°48'15	max. Earth dist.	2394 Oct 26 23:30	3° $\overline{\text{M}}$ 56'06	19.42560 AU
min. Earth dist.	2387 Mar 20 02:30	28° $\overline{\text{M}}$ 06'43	17.26468 AU	retrograde	2395 Feb 11 18:06	8° $\overline{\text{M}}$ 19'03	
direct	2387 Jun 03 09:30	26° $\overline{\text{M}}$ 02'24		opposition	2395 Apr 26 19:44	6° $\overline{\text{M}}$ 17'35	0°31'35
	2387 Sep 14 14:59	0° $\underline{\text{A}}$		min. Earth dist.	2395 Apr 27 06:45	6° $\overline{\text{M}}$ 16'24	17.44752 AU
conjunction	2387 Sep 23 22:55	0° $\underline{\text{A}}$ 35'16	0°42'49	direct	2395 Jul 12 18:09	4° $\overline{\text{M}}$ 12'19	
minimum elong	2387 Sep 23 22:55	0° $\underline{\text{A}}$ 35'16	0°42'49	conjunction	2395 Nov 01 12:43	8° $\overline{\text{M}}$ 40'57	0°26'55
max. Earth dist.	2387 Sep 22 22:57	0° $\underline{\text{A}}$ 31'30	19.26400 AU	minimum elong	2395 Nov 01 12:43	8° $\overline{\text{M}}$ 40'57	0°26'55
retrograde	2388 Jan 09 21:38	4° $\underline{\text{A}}$ 59'41		max. Earth dist.	2395 Nov 01 00:59	8° $\overline{\text{M}}$ 39'07	19.47034 AU
opposition	2388 Mar 23 07:25	2° $\underline{\text{A}}$ 57'05	0°47'13	retrograde	2396 Feb 16 16:03	13° $\overline{\text{M}}$ 01'00	
min. Earth dist.	2388 Mar 24 03:22	2° $\underline{\text{A}}$ 54'55	17.26565 AU	opposition	2396 Apr 30 21:17	10° $\overline{\text{M}}$ 59'44	0°28'23
direct	2388 Jun 07 13:32	0° $\underline{\text{A}}$ 50'29		min. Earth dist.	2396 May 01 07:59	10° $\overline{\text{M}}$ 58'35	17.49418 AU
max. Earth dist.	2388 Sep 27 04:44	5° $\underline{\text{A}}$ 19'50	19.26803 AU	direct	2396 Jul 16 19:50	8° $\overline{\text{M}}$ 54'47	
conjunction	2388 Sep 28 02:38	5° $\underline{\text{A}}$ 23'17	0°41'44	conjunction	2396 Nov 05 11:11	13° $\overline{\text{M}}$ 22'20	0°23'58
minimum elong	2388 Sep 28 02:38	5° $\underline{\text{A}}$ 23'17	0°41'45	minimum elong	2396 Nov 05 11:11	13° $\overline{\text{M}}$ 22'20	0°23'58
retrograde	2389 Jan 13 21:59	9° $\underline{\text{A}}$ 47'21		max. Earth dist.	2396 Nov 05 00:17	13° $\overline{\text{M}}$ 20'37	19.51878 AU
opposition	2389 Mar 28 09:06	7° $\underline{\text{A}}$ 44'49	0°45'51		2396 Dec 01 23:36	15° $\overline{\text{M}}$	
min. Earth dist.	2389 Mar 29 04:00	7° $\underline{\text{A}}$ 42'46	17.27273 AU	retrograde	2397 Feb 20 14:43	17° $\overline{\text{M}}$ 41'35	
direct	2389 Jun 12 18:38	5° $\underline{\text{A}}$ 38'15		opposition	2397 May 05 22:20	15° $\overline{\text{M}}$ 40'29	0°25'00
max. Earth dist.	2389 Oct 02 08:20	10° $\underline{\text{A}}$ 07'25	19.27840 AU	min. Earth dist.	2397 May 06 06:40	15° $\overline{\text{M}}$ 39'36	17.54409 AU
conjunction	2389 Oct 03 05:53	10° $\underline{\text{A}}$ 10'49	0°40'22		2397 May 22 03:02	15° $\overline{\text{R}}$ $\overline{\text{M}}$	
minimum elong	2389 Oct 03 05:53	10° $\underline{\text{A}}$ 10'49	0°40'22	direct	2397 Jul 21 22:39	13° $\overline{\text{M}}$ 35'51	
retrograde	2390 Jan 18 21:04	14° $\underline{\text{A}}$ 34'29			2397 Sep 17 23:44	15° $\overline{\text{M}}$	
opposition	2390 Apr 02 10:47	12° $\underline{\text{A}}$ 32'02	0°44'10	conjunction	2397 Nov 10 08:58	18° $\overline{\text{M}}$ 02'13	0°20'52
min. Earth dist.	2390 Apr 03 05:02	12° $\underline{\text{A}}$ 30'03	17.28648 AU	minimum elong	2397 Nov 10 08:58	18° $\overline{\text{M}}$ 02'13	0°20'51
direct	2390 Jun 17 22:29	10° $\underline{\text{A}}$ 25'33		max. Earth dist.	2397 Nov 10 00:22	18° $\overline{\text{M}}$ 00'53	19.57011 AU
conjunction	2390 Oct 08 08:43	14° $\underline{\text{A}}$ 57'47	0°38'44	retrograde	2398 Feb 25 11:11	22° $\overline{\text{M}}$ 20'36	
minimum elong	2390 Oct 08 08:43	14° $\underline{\text{A}}$ 57'47	0°38'43	opposition	2398 May 10 23:09	20° $\overline{\text{M}}$ 19'41	0°21'28
max. Earth dist.	2390 Oct 07 13:12	14° $\underline{\text{A}}$ 54'42	19.29553 AU	min. Earth dist.	2398 May 11 07:05	20° $\overline{\text{M}}$ 18'51	17.59674 AU
retrograde	2391 Jan 23 21:23	19° $\underline{\text{A}}$ 20'58		direct	2398 Jul 27 00:22	18° $\overline{\text{M}}$ 15'22	
opposition	2391 Apr 07 12:39	17° $\underline{\text{A}}$ 18'40	0°42'11	conjunction	2398 Nov 15 05:43	22° $\overline{\text{M}}$ 40'26	0°17'39
				minimum elong	2398 Nov 15 05:43	22° $\overline{\text{M}}$ 40'26	0°17'39

max. Earth dist.	2398 Nov 14 21:45	22° <del>ℓ</del> 39'12	19.62414 AU	min. Earth dist.	2405 Jun 12 08:00	22° <del>♊</del> 00'02	18.03176 AU
retrograde	2399 Mar 02 08:12	26° <del>ℓ</del> 57'57		direct	2405 Aug 28 20:30	19° <del>♊</del> 57'28	
opposition	2399 May 15 23:30	24° <del>ℓ</del> 57'09	0°17'49				
min. Earth dist.	2399 May 16 04:58	24° <del>ℓ</del> 56'35	17.65192 AU	conjunction	2405 Dec 16 03:23	24° <del>♊</del> 11'58	0°-6'-17
direct	2399 Aug 01 02:26	22° <del>ℓ</del> 53'08		minimum elong	2405 Dec 16 03:22	24° <del>♊</del> 11'58	0°06'18
				behind sun begin	2405 Dec 15 21:10	24° <del>♊</del> 11'02	
conjunction	2399 Nov 20 01:32	27° <del>ℓ</del> 16'50	0°14'20	behind sun end	2405 Dec 16 09:35	24° <del>♊</del> 12'53	
minimum elong	2399 Nov 20 01:32	27° <del>ℓ</del> 16'50	0°14'20	max. Earth dist.	2405 Dec 16 09:41	24° <del>♊</del> 12'54	20.06713 AU
behind sun begin	2399 Nov 19 22:22	27° <del>ℓ</del> 16'21		retrograde	2406 Apr 02 08:30	28° <del>♊</del> 22'47	
behind sun end	2399 Nov 20 04:41	27° <del>ℓ</del> 17'19		opposition	2406 Jun 17 08:58	26° <del>♊</del> 22'53	0°-8'-45
max. Earth dist.	2399 Nov 19 20:15	27° <del>ℓ</del> 16'01	19.68047 AU	min. Earth dist.	2406 Jun 17 02:08	26° <del>♊</del> 23'35	18.10233 AU
	2400 Jan 06 03:47	0° <del>♊</del>		direct	2406 Sep 02 16:27	24° <del>♊</del> 21'16	
retrograde	2400 Mar 06 03:03	1° <del>♊</del> 33'24					
	2400 May 09 01:23	30° <del>♈</del>		conjunction	2406 Dec 20 16:23	28° <del>♊</del> 34'13	0°-9'-36
opposition	2400 May 19 23:26	29° <del>ℓ</del> 32'44	0°14'04	minimum elong	2406 Dec 20 16:23	28° <del>♊</del> 34'13	0°09'36
min. Earth dist.	2400 May 20 04:11	29° <del>ℓ</del> 32'14	17.70932 AU	behind sun begin	2406 Dec 20 10:56	28° <del>♊</del> 33'24	
direct	2400 Aug 05 03:58	27° <del>ℓ</del> 29'01		behind sun end	2406 Dec 20 21:51	28° <del>♊</del> 35'01	
	2400 Oct 24 01:02	0° <del>♊</del>		max. Earth dist.	2406 Dec 20 23:36	28° <del>♊</del> 35'17	20.13827 AU
					2407 Jan 13 14:57	0° <del>♈</del>	
conjunction	2400 Nov 23 20:17	1° <del>♊</del> 51'15	0°10'57	retrograde	2407 Apr 06 23:53	2° <del>♈</del> 44'10	
minimum elong	2400 Nov 23 20:17	1° <del>♊</del> 51'15	0°10'57	opposition	2407 Jun 22 04:20	0° <del>♈</del> 44'26	0°-12'-24
behind sun begin	2400 Nov 23 15:16	1° <del>♊</del> 50'29		min. Earth dist.	2407 Jun 21 19:51	0° <del>♈</del> 45'18	18.17391 AU
behind sun end	2400 Nov 24 01:18	1° <del>♊</del> 52'00			2407 Jul 10 16:23	30° <del>♈</del>	
max. Earth dist.	2400 Nov 23 15:39	1° <del>♊</del> 50'33	19.73908 AU	direct	2407 Sep 07 09:53	28° <del>♊</del> 43'16	
retrograde	2401 Mar 10 21:54	6° <del>♊</del> 06'52			2407 Nov 02 03:28	0° <del>♈</del>	
opposition	2401 May 24 22:28	4° <del>♊</del> 06'17	0°10'16				
min. Earth dist.	2401 May 25 00:51	4° <del>♊</del> 06'02	17.76904 AU	conjunction	2407 Dec 25 04:40	2° <del>♈</del> 54'41	0°-12'-50
direct	2401 Aug 10 04:41	2° <del>♊</del> 02'51		minimum elong	2407 Dec 25 04:40	2° <del>♈</del> 54'41	0°12'52
				behind sun begin	2407 Dec 25 00:31	2° <del>♈</del> 54'04	
conjunction	2401 Nov 28 14:12	6° <del>♊</del> 23'35	0°07'32	behind sun end	2407 Dec 25 08:49	2° <del>♈</del> 55'18	
minimum elong	2401 Nov 28 14:12	6° <del>♊</del> 23'35	0°07'33	max. Earth dist.	2407 Dec 25 14:32	2° <del>♈</del> 56'10	20.20993 AU
behind sun begin	2401 Nov 28 08:11	6° <del>♊</del> 22'40		retrograde	2408 Apr 10 14:32	7° <del>♈</del> 03'46	
behind sun end	2401 Nov 28 20:12	6° <del>♊</del> 24'29		opposition	2408 Jun 25 22:57	5° <del>♈</del> 04'15	0°-15'-58
max. Earth dist.	2401 Nov 28 12:32	6° <del>♊</del> 23'20	19.79993 AU	min. Earth dist.	2408 Jun 25 12:41	5° <del>♈</del> 05'18	18.24540 AU
retrograde	2402 Mar 15 15:07	10° <del>♊</del> 38'12		direct	2408 Sep 11 04:34	3° <del>♈</del> 03'30	
opposition	2402 May 29 21:11	8° <del>♊</del> 37'43	0°06'25				
min. Earth dist.	2402 May 29 22:22	8° <del>♊</del> 37'36	17.83102 AU	conjunction	2408 Dec 28 16:10	7° <del>♈</del> 13'26	0°-15'-59
direct	2402 Aug 15 04:36	6° <del>♊</del> 34'36		minimum elong	2408 Dec 28 16:10	7° <del>♈</del> 13'26	0°16'00
				behind sun begin	2408 Dec 28 14:56	7° <del>♈</del> 13'15	
conjunction	2402 Dec 03 06:47	10° <del>♊</del> 53'45	0°04'06	behind sun end	2408 Dec 28 17:23	7° <del>♈</del> 13'36	
minimum elong	2402 Dec 03 06:46	10° <del>♊</del> 53'45	0°04'05	max. Earth dist.	2408 Dec 29 02:43	7° <del>♈</del> 15'00	20.28113 AU
behind sun begin	2402 Dec 03 00:17	10° <del>♊</del> 52'47		retrograde	2409 Apr 15 04:27	11° <del>♈</del> 21'41	
behind sun end	2402 Dec 03 13:16	10° <del>♊</del> 54'44		opposition	2409 Jun 30 16:50	9° <del>♈</del> 22'20	0°-19'-24
max. Earth dist.	2402 Dec 03 06:03	10° <del>♊</del> 53'40	19.86319 AU	min. Earth dist.	2409 Jun 30 05:34	9° <del>♈</del> 23'29	18.31626 AU
retrograde	2403 Mar 20 08:45	15° <del>♊</del> 07'25		direct	2409 Sep 15 19:48	7° <del>♈</del> 22'01	
opposition	2403 Jun 03 19:11	13° <del>♊</del> 07'01	0°02'35				
min. Earth dist.	2403 Jun 03 17:55	13° <del>♊</del> 07'09	17.89560 AU	conjunction	2410 Jan 02 03:05	11° <del>♈</del> 30'28	0°-19'-2
direct	2403 Aug 20 03:03	11° <del>♊</del> 04'13		minimum elong	2410 Jan 02 03:05	11° <del>♈</del> 30'28	0°19'03
				max. Earth dist.	2410 Jan 02 15:50	11° <del>♈</del> 32'23	20.35129 AU
conjunction	2403 Dec 07 22:37	15° <del>♊</del> 21'49	0°00'36	retrograde	2410 Apr 19 18:24	15° <del>♈</del> 37'54	
minimum elong	2403 Dec 07 22:38	15° <del>♊</del> 21'50	0°00'37	opposition	2410 Jul 05 10:08	13° <del>♈</del> 38'43	0°-22'-43
behind sun begin	2403 Dec 07 16:05	15° <del>♊</del> 20'51		min. Earth dist.	2410 Jul 04 21:06	13° <del>♈</del> 40'03	18.38556 AU
behind sun end	2403 Dec 08 05:12	15° <del>♊</del> 22'48		direct	2410 Sep 20 13:13	11° <del>♈</del> 38'49	
max. Earth dist.	2403 Dec 08 01:04	15° <del>♊</del> 22'08	19.92900 AU				
desc. node	2404 Feb 07 14:23	18° <del>♊</del> 40'27		conjunction	2411 Jan 06 13:03	15° <del>♈</del> 45'49	0°-21'-57
retrograde	2404 Mar 24 00:41	19° <del>♊</del> 34'30		minimum elong	2411 Jan 06 13:03	15° <del>♈</del> 45'49	0°21'58
opposition	2404 Jun 07 16:27	17° <del>♊</del> 34'15	0°-1'-14	max. Earth dist.	2411 Jan 07 02:23	15° <del>♈</del> 47'48	20.41956 AU
min. Earth dist.	2404 Jun 07 13:32	17° <del>♊</del> 34'34	17.96258 AU	retrograde	2411 Apr 24 07:13	19° <del>♈</del> 52'29	
direct	2404 Aug 24 00:38	15° <del>♊</del> 31'49		opposition	2411 Jul 10 02:52	17° <del>♈</del> 53'26	0°-25'-53
				min. Earth dist.	2411 Jul 09 13:15	17° <del>♈</del> 54'48	18.45284 AU
conjunction	2404 Dec 11 13:23	19° <del>♊</del> 47'51	0°-2'-54	direct	2411 Sep 25 02:56	15° <del>♈</del> 53'53	
minimum elong	2404 Dec 11 13:23	19° <del>♊</del> 47'51	0°02'55				
behind sun begin	2404 Dec 11 06:50	19° <del>♊</del> 46'53		conjunction	2412 Jan 10 22:37	19° <del>♈</del> 59'28	0°-24'-45
behind sun end	2404 Dec 11 19:56	19° <del>♊</del> 48'50		minimum elong	2412 Jan 10 22:37	19° <del>♈</del> 59'28	0°24'46
max. Earth dist.	2404 Dec 11 16:44	19° <del>♊</del> 48'19	19.99714 AU	max. Earth dist.	2412 Jan 11 13:42	20° <del>♈</del> 01'43	20.48549 AU
retrograde	2405 Mar 28 17:18	23° <del>♊</del> 59'36		retrograde	2412 Apr 27 20:01	24° <del>♈</del> 05'22	
opposition	2405 Jun 12 13:02	21° <del>♊</del> 59'30	0°-5'-1	opposition	2412 Jul 13 18:33	22° <del>♈</del> 06'25	0°-28'-53

min. Earth dist. direct	2412 Jul 13 03:15 2412 Sep 28 18:57	22°☾07'58 20°☾07'13	18.51733 AU	max. Earth dist. retrograde opposition	2420 Feb 13 02:52 2420 May 31 03:50 2420 Aug 16 23:45	22°≈53'41 26°≈51'40 24°≈52'56	20.91365 AU 0°-45'-45
conjunction minimum elong	2413 Jan 14 07:22 2413 Jan 14 07:21	24°☾11'25 24°☾11'25	0°-27'-23 0°27'24	min. Earth dist. direct	2420 Aug 16 00:57 2420 Nov 01 11:15	24°≈55'12 22°≈55'47	18.93500 AU
max. Earth dist. retrograde opposition	2413 Jan 14 22:47 2413 May 02 07:46 2413 Jul 18 09:45	24°☾13'43 28°☾16'35 26°☾17'41	20.54845 AU 18.57887 AU	conjunction minimum elong max. Earth dist.	2421 Feb 15 08:52 2421 Feb 15 08:52 2421 Feb 16 08:00	26°≈51'06 26°≈51'06 26°≈54'27	0°-41'-56 0°41'56 20.95482 AU
min. Earth dist. direct	2413 Jul 17 18:14 2413 Oct 03 07:21	26°☾19'15 24°☾18'47		retrograde	2421 Apr 18 19:20 2421 Jun 04 10:53 2421 Jul 22 20:13	0°☿ 0°☿52'05 30°☿≈	
conjunction minimum elong	2414 Jan 18 15:25 2414 Jan 18 15:25	28°☾21'38 28°☾21'38	0°-29'-52 0°29'52	min. Earth dist. opposition direct	2421 Aug 20 11:42 2421 Aug 21 09:52 2421 Nov 05 17:49	28°≈55'37 28°≈53'25 26°≈56'31	18.97443 AU 0°-46'-53
max. Earth dist. retrograde min. Earth dist. opposition	2414 Jan 19 08:25 2414 Feb 16 01:48 2414 May 06 18:59 2414 Jul 22 06:44	28°☾24'09 0°≈ 2°≈26'05 0°≈28'58	20.60844 AU 18.63733 AU	conjunction minimum elong max. Earth dist. retrograde opposition	2422 Feb 04 17:32 2422 Feb 19 13:30 2422 Feb 19 13:30 2422 Feb 20 13:24 2422 Jun 08 20:26	0°☿ 0°☿51'05 0°☿51'05 0°☿54'32 4°☿51'50	0°-42'-51 0°42'52 20.99233 AU
direct	2414 Aug 03 09:25 2414 Oct 07 22:08 2414 Dec 08 07:39	30°☿☾ 28°☾28'35 0°≈		retrograde opposition min. Earth dist. direct	2422 Jun 08 20:26 2422 Aug 25 19:25 2422 Aug 24 19:58 2422 Nov 10 02:01	4°☿51'50 2°☿53'12 2°☿55'32 0°☿56'31	19.00982 AU
conjunction minimum elong	2415 Jan 22 22:45 2415 Jan 22 22:45	2°≈30'07 2°≈30'07	0°-32'-10 0°32'11	conjunction minimum elong max. Earth dist. retrograde min. Earth dist.	2423 Feb 23 18:07 2423 Feb 23 18:07 2423 Feb 24 17:57 2423 Jun 13 03:10 2423 Aug 29 06:16	4°☿50'26 4°☿50'26 4°☿53'52 8°☿51'00 6°☿54'38	0°-43'-34 0°43'34 21.02542 AU 19.04065 AU
max. Earth dist. retrograde opposition min. Earth dist. direct	2415 Jan 23 16:20 2415 May 11 05:35 2415 Jul 27 13:46 2415 Jul 26 20:16 2415 Oct 12 09:06	2°≈32'43 6°≈33'55 4°≈35'02 4°≈36'48 2°≈36'38	20.66545 AU 18.69315 AU	opposition direct	2423 Aug 30 04:37 2423 Nov 14 07:35	6°☿52'24 4°☿55'55	0°-48'-27
conjunction minimum elong	2416 Jan 27 05:32 2416 Jan 27 05:32	6°≈36'56 6°≈36'56	0°-34'-16 0°34'17	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	2424 Feb 27 22:47 2424 Feb 27 22:47 2424 Feb 28 22:49 2424 Jun 16 12:28 2424 Sep 02 13:20 2424 Sep 01 14:08 2424 Nov 17 14:59	8°☿49'16 8°☿49'16 8°☿52'43 12°☿49'41 10°☿51'06 10°☿53'24 8°☿54'46	0°-44'-5 0°44'06 21.05372 AU 0°-48'-53 19.06625 AU
max. Earth dist. retrograde opposition min. Earth dist. direct	2416 Jan 28 00:41 2416 May 14 15:35 2416 Jul 30 07:07 2416 Jul 31 02:35 2416 Oct 15 21:46	6°≈39'45 10°≈40'06 8°≈43'11 8°≈41'14 6°≈43'04	20.71997 AU 18.74643 AU	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	2425 Mar 03 03:18 2425 Mar 03 03:18 2425 Mar 04 02:49 2425 Jun 20 19:06 2425 Sep 06 21:54 2425 Sep 06 00:03 2425 Nov 21 20:14	12°☿47'38 12°☿47'38 12°☿51'00 16°☿47'58 14°☿49'21 14°☿51'32 12°☿53'08	0°-44'-23 0°44'23 21.07644 AU 0°-49'-5 19.08617 AU
conjunction minimum elong	2417 Jan 30 11:44 2417 Jan 30 11:43	10°≈42'12 10°≈42'12	0°-36'-12 0°36'14	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	2426 Mar 07 07:59 2426 Mar 07 07:59 2426 Mar 08 07:22 2426 Jun 25 03:55 2426 Sep 10 07:28 2426 Sep 11 05:58 2426 Nov 26 03:09	16°☿45'35 16°☿45'35 16°☿48'56 20°☿45'52 18°☿49'26 18°☿47'11 16°☿51'01	0°-44'-27 0°44'29 21.09355 AU 0°-49'-3
max. Earth dist. retrograde opposition min. Earth dist. direct	2418 Feb 03 17:34 2418 Feb 03 17:34 2418 Feb 04 14:44 2418 Feb 07 16:45 2418 May 23 10:21 2418 Aug 08 04:54 2418 Aug 09 02:22 2418 Oct 06 10:11 2418 Oct 24 18:00 2418 Nov 11 18:02	14°≈46'05 14°≈46'05 14°≈49'10 15°≈ 18°≈48'11 16°≈51'30 16°≈49'21 15°☿≈ 14°≈51'42 15°≈	0°-37'-56 0°37'56 20.82181 AU 18.84604 AU	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	2427 Mar 11 12:31 2427 Mar 11 12:30 2427 Mar 12 11:16 2427 Jun 29 10:29 2427 Sep 15 13:49 2427 Sep 14 16:49 2427 Nov 30 07:49	20°☿43'07 20°☿43'07 20°☿46'23 24°☿43'25 22°☿44'38 22°☿46'43 20°☿48'29	0°-44'-20 0°44'21 21.10484 AU 0°-48'-47 19.10890 AU
conjunction minimum elong	2419 Feb 07 22:51 2419 Feb 07 22:51	18°≈48'45 18°≈48'45	0°-39'-28 0°39'29	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	2428 Mar 14 17:12 2428 Mar 14 17:12	24°☿40'19 24°☿40'19	0°-43'-59 0°44'00
max. Earth dist. retrograde opposition min. Earth dist. direct	2419 Feb 08 20:37 2419 May 27 18:11 2419 Aug 13 13:31 2419 Aug 12 16:16 2419 Oct 29 02:11	18°≈51'55 22°≈50'25 20°≈51'38 20°≈53'45 18°≈54'14	20.86909 AU 18.89206 AU				



max. Earth dist.	2428 Mar 15 15:47	24° <del>✕</del> 43'33	21.11084 AU	max. Earth dist.	2436 Apr 16 08:12	26° <del>Υ</del> 24'40	21.00722 AU
retrograde	2428 Jul 02 18:35	28° <del>✕</del> 40'38			2436 Jul 03 04:44	0° <del>♄</del>	
opposition	2428 Sep 18 21:01	26° <del>✕</del> 41'45	0°-48'-17	retrograde	2436 Aug 04 12:41	0° <del>♄</del> 25'10	
min. Earth dist.	2428 Sep 17 23:27	26° <del>✕</del> 43'54	19.11234 AU		2436 Sep 06 06:49	30° <del>♁</del> <del>Υ</del>	
direct	2428 Dec 03 14:12	24° <del>✕</del> 45'35		min. Earth dist.	2436 Oct 20 11:19	28° <del>Υ</del> 27'09	18.99213 AU
				opposition	2436 Oct 21 03:05	28° <del>Υ</del> 25'33	0°-36'-26
conjunction	2429 Mar 18 21:51	28° <del>✕</del> 37'15	0°-43'-25	direct	2437 Jan 04 02:04	26° <del>Υ</del> 28'56	
minimum elong	2429 Mar 18 21:51	28° <del>✕</del> 37'15	0°43'27		2437 Apr 13 06:37	0° <del>♄</del>	
max. Earth dist.	2429 Mar 19 19:53	28° <del>✕</del> 40'24	21.11188 AU				
	2429 Apr 12 13:03	0° <del>Υ</del>		conjunction	2437 Apr 19 22:30	0° <del>♄</del> 22'50	0°-31'-56
retrograde	2429 Jul 07 00:58	2° <del>Υ</del> 37'41		minimum elong	2437 Apr 19 22:30	0° <del>♄</del> 22'50	0°31'56
min. Earth dist.	2429 Sep 22 08:04	0° <del>Υ</del> 40'41	19.11120 AU	max. Earth dist.	2437 Apr 20 14:37	0° <del>♄</del> 25'08	20.97544 AU
opposition	2429 Sep 23 04:13	0° <del>Υ</del> 38'40	0°-47'-33	retrograde	2437 Aug 08 21:36	4° <del>♄</del> 26'25	
	2429 Oct 09 13:42	30° <del>♁</del> <del>✕</del>		opposition	2437 Oct 25 10:13	2° <del>♄</del> 26'41	0°-34'-3
direct	2429 Dec 07 17:55	28° <del>✕</del> 42'29		min. Earth dist.	2437 Oct 24 20:42	2° <del>♄</del> 28'04	18.95787 AU
	2430 Feb 02 01:59	0° <del>Υ</del>		direct	2438 Jan 08 06:51	0° <del>♄</del> 29'56	
conjunction	2430 Mar 23 02:34	2° <del>Υ</del> 34'05	0°-42'-40	conjunction	2438 Apr 24 07:00	4° <del>♄</del> 24'30	0°-29'-41
minimum elong	2430 Mar 23 02:34	2° <del>Υ</del> 34'05	0°42'40	minimum elong	2438 Apr 24 07:00	4° <del>♄</del> 24'30	0°29'42
max. Earth dist.	2430 Mar 24 00:33	2° <del>Υ</del> 37'12	21.10871 AU	max. Earth dist.	2438 Apr 24 21:36	4° <del>♄</del> 26'35	20.93874 AU
retrograde	2430 Jul 11 09:20	6° <del>Υ</del> 34'41		retrograde	2438 Aug 13 09:21	8° <del>♄</del> 28'42	
opposition	2430 Sep 27 11:03	4° <del>Υ</del> 35'33	0°-46'-36	opposition	2438 Oct 29 17:27	6° <del>♄</del> 28'51	0°-31'-29
min. Earth dist.	2430 Sep 26 14:19	4° <del>Υ</del> 37'38	19.10595 AU	min. Earth dist.	2438 Oct 29 04:33	6° <del>♄</del> 30'10	18.91846 AU
direct	2430 Dec 11 23:49	2° <del>Υ</del> 39'19		direct	2439 Jan 12 13:16	4° <del>♄</del> 31'52	
conjunction	2431 Mar 27 07:39	6° <del>Υ</del> 30'57	0°-41'-42	conjunction	2439 Apr 28 16:16	8° <del>♄</del> 27'12	0°-27'-17
minimum elong	2431 Mar 27 07:39	6° <del>Υ</del> 30'57	0°41'43	minimum elong	2439 Apr 28 16:16	8° <del>♄</del> 27'12	0°27'17
max. Earth dist.	2431 Mar 28 05:00	6° <del>Υ</del> 34'00	21.10142 AU	max. Earth dist.	2439 Apr 29 05:07	8° <del>♄</del> 29'02	20.89665 AU
retrograde	2431 Jul 15 15:49	10° <del>Υ</del> 31'48		retrograde	2439 Aug 17 18:21	12° <del>♄</del> 32'01	
opposition	2431 Oct 01 17:44	8° <del>Υ</del> 32'34	0°-45'-25	opposition	2439 Nov 03 00:53	10° <del>♄</del> 32'00	0°-28'-44
min. Earth dist.	2431 Sep 30 22:32	8° <del>Υ</del> 34'30	19.09677 AU	min. Earth dist.	2439 Nov 02 14:24	10° <del>♄</del> 33'05	18.87376 AU
direct	2431 Dec 16 02:56	6° <del>Υ</del> 36'18		direct	2440 Jan 16 18:44	8° <del>♄</del> 34'47	
conjunction	2432 Mar 30 13:02	10° <del>Υ</del> 28'04	0°-40'-32	conjunction	2440 May 02 02:09	12° <del>♄</del> 30'55	0°-24'-44
minimum elong	2432 Mar 30 13:02	10° <del>Υ</del> 28'04	0°40'33	minimum elong	2440 May 02 02:09	12° <del>♄</del> 30'55	0°24'45
max. Earth dist.	2432 Mar 31 10:02	10° <del>Υ</del> 31'03	21.09042 AU	max. Earth dist.	2440 May 02 13:12	12° <del>♄</del> 32'30	20.84967 AU
retrograde	2432 Jul 19 00:54	14° <del>Υ</del> 29'13			2440 Jun 17 11:38	15° <del>♄</del>	
min. Earth dist.	2432 Oct 04 04:42	12° <del>Υ</del> 31'51	19.08380 AU	retrograde	2440 Aug 21 06:44	16° <del>♄</del> 36'24	
opposition	2432 Oct 05 00:17	12° <del>Υ</del> 29'53	0°-44'-2		2440 Oct 27 15:03	15° <del>♁</del> <del>♄</del>	
direct	2432 Dec 19 08:19	10° <del>Υ</del> 33'34		opposition	2440 Nov 06 08:31	14° <del>♄</del> 36'11	0°-25'-50
				min. Earth dist.	2440 Nov 05 22:45	14° <del>♄</del> 37'11	18.82437 AU
conjunction	2433 Apr 03 18:35	14° <del>Υ</del> 25'34	0°-39'-11	direct	2441 Jan 20 02:24	12° <del>♄</del> 38'39	
minimum elong	2433 Apr 03 18:35	14° <del>Υ</del> 25'34	0°39'12		2441 Apr 08 01:20	15° <del>♄</del>	
max. Earth dist.	2433 Apr 04 14:50	14° <del>Υ</del> 28'27	21.07550 AU				
retrograde	2433 Jul 23 08:05	18° <del>Υ</del> 27'06		conjunction	2441 May 06 12:28	16° <del>♄</del> 35'41	0°-22'-2
opposition	2433 Oct 09 07:01	16° <del>Υ</del> 27'42	0°-42'-26	minimum elong	2441 May 06 12:28	16° <del>♄</del> 35'41	0°22'03
min. Earth dist.	2433 Oct 08 13:04	16° <del>Υ</del> 29'31	19.06698 AU	max. Earth dist.	2441 May 06 22:02	16° <del>♄</del> 37'03	20.79810 AU
direct	2433 Dec 23 11:44	14° <del>Υ</del> 31'20		retrograde	2441 Aug 25 16:15	20° <del>♄</del> 41'52	
				opposition	2441 Nov 10 16:32	18° <del>♄</del> 41'25	0°-22'-48
conjunction	2434 Apr 08 00:45	18° <del>Υ</del> 23'40	0°-37'-38	min. Earth dist.	2441 Nov 10 08:59	18° <del>♄</del> 42'12	18.77081 AU
minimum elong	2434 Apr 08 00:45	18° <del>Υ</del> 23'40	0°37'40	direct	2442 Jan 24 08:20	16° <del>♄</del> 43'34	
max. Earth dist.	2434 Apr 08 20:26	18° <del>Υ</del> 26'28	21.05690 AU				
retrograde	2434 Jul 27 17:50	22° <del>Υ</del> 25'38		conjunction	2442 May 10 23:38	20° <del>♄</del> 41'34	0°-19'-13
opposition	2434 Oct 13 13:34	20° <del>Υ</del> 26'09	0°-40'-38	minimum elong	2442 May 10 23:38	20° <del>♄</del> 41'34	0°19'14
min. Earth dist.	2434 Oct 12 19:31	20° <del>Υ</del> 27'58	19.04634 AU	max. Earth dist.	2442 May 11 07:27	20° <del>♄</del> 42'41	20.74292 AU
direct	2434 Dec 27 16:46	18° <del>Υ</del> 29'43		retrograde	2442 Aug 30 05:11	24° <del>♄</del> 48'28	
				opposition	2442 Nov 15 00:33	22° <del>♄</del> 47'48	0°-19'-37
conjunction	2435 Apr 12 07:23	22° <del>Υ</del> 22'29	0°-35'-55	min. Earth dist.	2442 Nov 14 17:48	22° <del>♄</del> 48'30	18.71397 AU
minimum elong	2435 Apr 12 07:23	22° <del>Υ</del> 22'29	0°35'56	direct	2443 Jan 28 17:05	20° <del>♄</del> 49'36	
max. Earth dist.	2435 Apr 13 02:00	22° <del>Υ</del> 25'08	21.03419 AU				
retrograde	2435 Aug 01 02:13	26° <del>Υ</del> 24'56		conjunction	2443 May 15 11:34	24° <del>♄</del> 48'39	0°-16'-18
opposition	2435 Oct 17 20:22	24° <del>Υ</del> 25'24	0°-38'-38	minimum elong	2443 May 15 11:34	24° <del>♄</del> 48'39	0°16'19
min. Earth dist.	2435 Oct 17 04:18	24° <del>Υ</del> 27'01	19.02148 AU	max. Earth dist.	2443 May 15 18:00	24° <del>♄</del> 49'34	20.68455 AU
direct	2435 Dec 31 20:46	22° <del>Υ</del> 28'53		retrograde	2443 Sep 03 15:45	28° <del>♄</del> 56'20	
				opposition	2443 Nov 19 09:07	26° <del>♄</del> 55'28	0°-16'-19
conjunction	2436 Apr 15 14:39	26° <del>Υ</del> 22'10	0°-34'-1	min. Earth dist.	2443 Nov 19 04:27	26° <del>♄</del> 55'57	18.65429 AU
minimum elong	2436 Apr 15 14:39	26° <del>Υ</del> 22'10	0°34'02	direct	2444 Feb 01 23:45	24° <del>♄</del> 56'54	

conjunction	2444 May 19 00:06	28°♄57'05	0°-13'-16	behind sun end	2450 Jun 15 04:47	24°♄24'58	
minimum elong	2444 May 19 00:06	28°♄57'05	0°13'17	max. Earth dist.	2450 Jun 14 16:33	24°♄23'13	20.23201 AU
behind sun begin	2444 May 18 20:19	28°♄56'33		retrograde	2450 Oct 03 21:53	28°♄38'08	
behind sun end	2444 May 19 03:54	28°♄57'38		opposition	2450 Dec 18 10:17	26°♄36'21	0°08'45
max. Earth dist.	2444 May 19 04:41	28°♄57'44	20.62382 AU	min. Earth dist.	2450 Dec 18 15:27	26°♄35'48	18.19752 AU
	2444 Jun 06 06:33	0°♄		direct	2451 Mar 03 00:57	24°♄35'24	
retrograde	2444 Sep 07 05:24	3°♄05'35					
opposition	2444 Nov 22 17:54	1°♄04'31	0°-12'-55	conjunction	2451 Jun 19 17:45	28°♄45'37	0°09'34
min. Earth dist.	2444 Nov 22 13:57	1°♄04'56	18.59255 AU	minimum elong	2451 Jun 19 17:45	28°♄45'37	0°09'34
	2444 Dec 19 23:45	30°♄		behind sun begin	2451 Jun 19 12:12	28°♄44'49	
direct	2445 Feb 05 09:15	29°♄05'36		behind sun end	2451 Jun 19 23:19	28°♄46'26	
	2445 Mar 23 15:33	0°♄		max. Earth dist.	2451 Jun 19 10:44	28°♄44'36	20.16310 AU
					2451 Jul 10 21:36	0°♄	
conjunction	2445 May 23 13:31	3°♄07'01	0°-10'-10	retrograde	2451 Oct 08 15:03	3°♄00'39	
minimum elong	2445 May 23 13:31	3°♄07'01	0°10'12	opposition	2451 Dec 22 23:23	0°♄58'46	0°12'25
behind sun begin	2445 May 23 08:12	3°♄06'16		min. Earth dist.	2451 Dec 23 06:23	0°♄58'02	18.12804 AU
behind sun end	2445 May 23 18:51	3°♄07'46			2452 Jan 15 22:22	30°♄	
max. Earth dist.	2445 May 23 16:58	3°♄07'30	20.56116 AU	direct	2452 Mar 06 14:34	28°♄57'27	
retrograde	2445 Sep 11 17:28	7°♄16'22			2452 Apr 25 01:23	0°♄	
opposition	2445 Nov 27 03:15	5°♄15'08	0°-9'-26				
min. Earth dist.	2445 Nov 27 01:13	5°♄15'20	18.52916 AU	conjunction	2452 Jun 23 13:42	3°♄09'14	0°12'50
direct	2446 Feb 09 17:13	3°♄15'52		minimum elong	2452 Jun 23 13:42	3°♄09'14	0°12'50
				behind sun begin	2452 Jun 23 09:38	3°♄08'38	
conjunction	2446 May 28 03:46	7°♄18'35	0°-7'00	behind sun end	2452 Jun 23 17:46	3°♄09'49	
minimum elong	2446 May 28 03:46	7°♄18'35	0°07'00	max. Earth dist.	2452 Jun 23 03:36	3°♄07'44	20.09315 AU
behind sun begin	2446 May 27 21:33	7°♄17'42		retrograde	2452 Oct 12 09:07	7°♄25'12	
behind sun end	2446 May 28 09:58	7°♄19'28		opposition	2452 Dec 26 13:10	5°♄23'10	0°16'02
max. Earth dist.	2446 May 28 05:09	7°♄18'46	20.49726 AU	min. Earth dist.	2452 Dec 26 21:48	5°♄22'15	18.05771 AU
retrograde	2446 Sep 16 08:10	11°♄28'50		direct	2453 Mar 11 05:20	3°♄21'25	
opposition	2446 Dec 01 13:03	9°♄27'27	0°-5'-53				
min. Earth dist.	2446 Dec 01 11:50	9°♄27'34	18.46466 AU	conjunction	2453 Jun 28 10:49	7°♄34'47	0°16'04
direct	2447 Feb 14 03:16	7°♄27'50		minimum elong	2453 Jun 28 10:49	7°♄34'47	0°16'04
				max. Earth dist.	2453 Jun 27 23:49	7°♄33'09	20.02245 AU
conjunction	2447 Jun 01 19:01	11°♄31'57	0°-3'-46	retrograde	2453 Oct 17 03:46	11°♄51'38	
minimum elong	2447 Jun 01 19:02	11°♄31'57	0°03'47	opposition	2453 Dec 31 03:31	9°♄49'28	0°19'36
behind sun begin	2447 Jun 01 12:22	11°♄31'00		min. Earth dist.	2453 Dec 31 13:40	9°♄48'23	17.98687 AU
behind sun end	2447 Jun 02 01:42	11°♄32'54		direct	2454 Mar 15 20:38	7°♄47'16	
max. Earth dist.	2447 Jun 01 19:20	11°♄31'58	20.43217 AU				
retrograde	2447 Sep 20 22:02	15°♄43'07		conjunction	2454 Jul 03 08:38	12°♄02'13	0°19'13
opposition	2447 Dec 05 23:22	13°♄41'36	0°-2'-16	minimum elong	2454 Jul 03 08:38	12°♄02'13	0°19'14
min. Earth dist.	2447 Dec 06 00:02	13°♄41'32	18.39912 AU	max. Earth dist.	2454 Jul 02 18:34	12°♄00'07	19.95172 AU
direct	2448 Feb 18 13:08	11°♄41'41		retrograde	2454 Oct 21 23:04	16°♄19'56	
				opposition	2455 Jan 04 18:37	14°♄17'35	0°23'04
conjunction	2448 Jun 05 11:09	15°♄47'14	0°00'-26	min. Earth dist.	2455 Jan 05 06:31	14°♄16'19	17.91642 AU
minimum elong	2448 Jun 05 11:09	15°♄47'14	0°00'27	direct	2455 Mar 20 12:41	12°♄14'56	
behind sun begin	2448 Jun 05 04:25	15°♄46'17					
behind sun end	2448 Jun 05 17:52	15°♄48'12		conjunction	2455 Jul 08 07:23	16°♄31'27	0°22'17
max. Earth dist.	2448 Jun 05 09:06	15°♄47'00	20.36637 AU	minimum elong	2455 Jul 08 07:23	16°♄31'27	0°22'17
asc. node	2448 Jul 23 21:06	18°♄25'32		max. Earth dist.	2455 Jul 07 16:47	16°♄29'15	19.88158 AU
retrograde	2448 Sep 24 13:30	19°♄59'23		retrograde	2455 Oct 26 19:17	20°♄49'58	
opposition	2448 Dec 09 10:21	17°♄57'46	0°01'23	opposition	2456 Jan 09 10:18	18°♄47'29	0°26'25
min. Earth dist.	2448 Dec 09 12:05	17°♄57'35	18.33291 AU	min. Earth dist.	2456 Jan 09 23:13	18°♄46'05	17.84691 AU
direct	2449 Feb 22 00:12	15°♄57'31		direct	2456 Mar 24 05:55	16°♄44'22	
conjunction	2449 Jun 10 04:14	20°♄04'35	0°02'57	conjunction	2456 Jul 12 06:42	21°♄02'25	0°25'13
minimum elong	2449 Jun 10 04:13	20°♄04'35	0°02'57	minimum elong	2456 Jul 12 06:42	21°♄02'25	0°25'14
behind sun begin	2449 Jun 09 21:29	20°♄03'37		max. Earth dist.	2456 Jul 11 13:25	20°♄59'48	19.81294 AU
behind sun end	2449 Jun 10 10:57	20°♄05'33		retrograde	2456 Oct 30 15:12	25°♄21'45	
max. Earth dist.	2449 Jun 10 01:12	20°♄04'11	20.29965 AU	opposition	2457 Jan 13 02:46	23°♄19'05	0°29'37
retrograde	2449 Sep 29 05:15	24°♄17'42		min. Earth dist.	2457 Jan 13 17:21	23°♄17'30	17.77944 AU
opposition	2449 Dec 13 22:03	22°♄16'01	0°05'03	direct	2457 Mar 28 22:49	21°♄15'31	
min. Earth dist.	2449 Dec 14 01:40	22°♄15'37	18.26570 AU				
direct	2450 Feb 26 12:02	20°♄15'26		conjunction	2457 Jul 17 06:49	25°♄35'06	0°28'01
				minimum elong	2457 Jul 17 06:49	25°♄35'06	0°28'01
conjunction	2450 Jun 14 22:24	24°♄24'03	0°06'16	max. Earth dist.	2457 Jul 16 13:22	25°♄32'27	19.74662 AU
minimum elong	2450 Jun 14 22:25	24°♄24'03	0°06'15	retrograde	2457 Nov 04 13:02	29°♄55'11	
behind sun begin	2450 Jun 14 16:02	24°♄23'08		opposition	2458 Jan 17 19:53	27°♄52'23	0°32'39

min. Earth dist.	2458 Jan 18 10:59	27° <del>5</del> 50'44	17.71450 AU	conjunction	2465 Aug 25 06:00	2° <del>1</del> 55'51	0°43'02
direct	2458 Apr 02 18:22	25° <del>5</del> 48'23		minimum elong	2465 Aug 25 06:00	2° <del>1</del> 55'51	0°43'01
	2458 Jul 19 17:39	0° <del>0</del>		retrograde	2465 Dec 12 04:39	7° <del>1</del> 20'23	
max. Earth dist.	2458 Jul 21 11:55	0° <del>0</del> 06'27	19.68321 AU	opposition	2466 Feb 23 15:27	5° <del>1</del> 17'32	0°48'25
				min. Earth dist.	2466 Feb 24 11:49	5° <del>1</del> 15'18	17.34424 AU
conjunction	2458 Jul 22 07:39	0° <del>0</del> 09'27	0°30'39	direct	2466 May 10 07:13	3° <del>1</del> 11'29	
minimum elong	2458 Jul 22 07:39	0° <del>0</del> 09'27	0°30'39	max. Earth dist.	2466 Aug 29 10:28	7° <del>1</del> 38'29	19.32980 AU
retrograde	2458 Nov 09 09:07	4° <del>0</del> 30'16					
opposition	2459 Jan 22 13:43	2° <del>0</del> 27'20	0°35'30	conjunction	2466 Aug 30 10:57	7° <del>1</del> 42'19	0°43'44
min. Earth dist.	2459 Jan 23 06:27	2° <del>0</del> 25'31	17.65299 AU	minimum elong	2466 Aug 30 10:57	7° <del>1</del> 42'19	0°43'45
direct	2459 Apr 07 12:40	0° <del>0</del> 22'56		retrograde	2466 Dec 17 04:26	12° <del>0</del> 07'03	
				opposition	2467 Feb 28 15:03	10° <del>0</del> 04'15	0°49'03
conjunction	2459 Jul 27 09:14	4° <del>0</del> 45'29	0°33'06	min. Earth dist.	2467 Mar 01 12:40	10° <del>0</del> 01'52	17.31737 AU
minimum elong	2459 Jul 27 09:13	4° <del>0</del> 45'29	0°33'06	direct	2467 May 15 08:22	7° <del>1</del> 58'03	
max. Earth dist.	2459 Jul 26 13:28	4° <del>0</del> 42'27	19.62355 AU				
retrograde	2459 Nov 14 08:07	9° <del>0</del> 06'58		conjunction	2467 Sep 04 15:49	12° <del>0</del> 29'35	0°44'09
opposition	2460 Jan 27 08:19	7° <del>0</del> 03'58	0°38'08	minimum elong	2467 Sep 04 15:49	12° <del>0</del> 29'35	0°44'09
min. Earth dist.	2460 Jan 28 01:02	7° <del>0</del> 02'08	17.59540 AU	max. Earth dist.	2467 Sep 03 14:19	12° <del>0</del> 25'35	19.30527 AU
direct	2460 Apr 11 10:14	4° <del>0</del> 59'13		retrograde	2467 Dec 22 06:19	16° <del>0</del> 54'28	
				opposition	2468 Mar 04 15:04	14° <del>0</del> 51'41	0°49'20
conjunction	2460 Jul 31 11:09	9° <del>0</del> 23'10	0°35'21	min. Earth dist.	2468 Mar 05 11:59	14° <del>0</del> 49'23	17.29523 AU
minimum elong	2460 Jul 31 11:09	9° <del>0</del> 23'10	0°35'20	direct	2468 May 19 12:02	12° <del>0</del> 45'20	
max. Earth dist.	2460 Jul 30 13:47	9° <del>0</del> 19'53	19.56811 AU				
retrograde	2460 Nov 18 04:59	13° <del>0</del> 45'19		conjunction	2468 Sep 08 20:40	17° <del>0</del> 17'26	0°44'15
opposition	2461 Jan 31 03:47	11° <del>0</del> 42'17	0°40'32	minimum elong	2468 Sep 08 20:40	17° <del>0</del> 17'26	0°44'15
min. Earth dist.	2461 Jan 31 22:00	11° <del>0</del> 40'17	17.54237 AU	max. Earth dist.	2468 Sep 07 20:12	17° <del>0</del> 13'36	19.28552 AU
direct	2461 Apr 16 06:17	9° <del>0</del> 37'14		retrograde	2468 Dec 26 06:48	21° <del>0</del> 42'20	
				opposition	2469 Mar 09 15:36	19° <del>0</del> 39'36	0°49'17
conjunction	2461 Aug 05 13:56	14° <del>0</del> 02'33	0°37'23	min. Earth dist.	2469 Mar 10 13:10	19° <del>0</del> 37'14	17.27802 AU
minimum elong	2461 Aug 05 13:56	14° <del>0</del> 02'33	0°37'23	direct	2469 May 24 13:49	17° <del>0</del> 33'08	
max. Earth dist.	2461 Aug 04 16:27	13° <del>0</del> 59'15	19.51739 AU	max. Earth dist.	2469 Sep 13 00:02	22° <del>0</del> 01'39	19.27105 AU
	2461 Aug 21 05:03	15° <del>0</del>					
retrograde	2461 Nov 23 05:05	18° <del>0</del> 25'18		conjunction	2469 Sep 14 01:22	22° <del>0</del> 05'38	0°44'02
opposition	2462 Feb 04 23:41	16° <del>0</del> 22'16	0°42'41	minimum elong	2469 Sep 14 01:22	22° <del>0</del> 05'38	0°44'03
min. Earth dist.	2462 Feb 05 17:41	16° <del>0</del> 20'18	17.49394 AU	retrograde	2469 Dec 31 08:16	26° <del>0</del> 30'29	
	2462 Mar 11 03:56	15° <del>0</del> 0		opposition	2470 Mar 14 16:15	24° <del>0</del> 27'45	0°48'53
direct	2462 Apr 21 05:39	14° <del>0</del> 16'59		min. Earth dist.	2470 Mar 15 13:05	24° <del>0</del> 25'28	17.26633 AU
	2462 May 31 16:51	15° <del>0</del>		direct	2470 May 29 17:44	22° <del>0</del> 21'10	
				max. Earth dist.	2470 Sep 18 06:21	26° <del>0</del> 50'14	19.26220 AU
conjunction	2462 Aug 10 17:18	18° <del>0</del> 43'37	0°39'11				
minimum elong	2462 Aug 10 17:18	18° <del>0</del> 43'37	0°39'11	conjunction	2470 Sep 19 05:59	26° <del>0</del> 53'57	0°43'31
max. Earth dist.	2462 Aug 09 18:39	18° <del>0</del> 40'07	19.47120 AU	minimum elong	2470 Sep 19 05:59	26° <del>0</del> 53'57	0°43'31
retrograde	2462 Nov 28 03:02	23° <del>0</del> 06'56			2470 Nov 12 08:36	0° <del>0</del>	
opposition	2463 Feb 09 20:38	21° <del>0</del> 03'56	0°44'33	retrograde	2471 Jan 05 08:54	1° <del>0</del> 18'38	
min. Earth dist.	2463 Feb 10 16:17	21° <del>0</del> 01'47	17.45010 AU		2471 Mar 02 13:16	30° <del>0</del> 0	
direct	2463 Apr 26 03:20	18° <del>0</del> 58'26		opposition	2471 Mar 19 17:28	29° <del>0</del> 15'57	0°48'09
				min. Earth dist.	2471 Mar 20 14:11	29° <del>0</del> 13'41	17.26044 AU
conjunction	2463 Aug 15 21:06	23° <del>0</del> 26'17	0°40'44	direct	2471 Jun 03 20:28	27° <del>0</del> 09'19	
minimum elong	2463 Aug 15 21:06	23° <del>0</del> 26'17	0°40'45		2471 Aug 27 18:47	0° <del>0</del>	
max. Earth dist.	2463 Aug 14 21:57	23° <del>0</del> 22'42	19.42955 AU	max. Earth dist.	2471 Sep 23 10:01	1° <del>0</del> 38'25	19.25949 AU
retrograde	2463 Dec 03 04:11	27° <del>0</del> 50'05					
opposition	2464 Feb 14 18:11	25° <del>0</del> 47'09	0°46'09	conjunction	2471 Sep 24 09:54	1° <del>0</del> 42'11	0°42'42
min. Earth dist.	2464 Feb 15 13:26	25° <del>0</del> 45'02	17.41061 AU	minimum elong	2471 Sep 24 09:54	1° <del>0</del> 42'11	0°42'42
direct	2464 Apr 30 04:44	23° <del>0</del> 41'28		retrograde	2472 Jan 10 09:17	6° <del>0</del> 06'39	
max. Earth dist.	2464 Aug 19 01:43	28° <del>0</del> 06'45	19.39207 AU	opposition	2472 Mar 23 18:51	4° <del>0</del> 03'59	0°47'04
				min. Earth dist.	2472 Mar 24 14:37	4° <del>0</del> 01'49	17.26103 AU
conjunction	2464 Aug 20 01:25	28° <del>0</del> 10'26	0°42'01	direct	2472 Jun 08 01:02	1° <del>0</del> 57'19	
minimum elong	2464 Aug 20 01:25	28° <del>0</del> 10'26	0°42'02				
	2464 Sep 19 04:46	0° <del>0</del>		conjunction	2472 Sep 28 13:41	6° <del>0</del> 30'09	0°41'35
retrograde	2464 Dec 07 03:01	2° <del>0</del> 34'39		minimum elong	2472 Sep 28 13:41	6° <del>0</del> 30'09	0°41'34
opposition	2465 Feb 18 16:32	0° <del>0</del> 31'45	0°47'26	max. Earth dist.	2472 Sep 27 15:59	6° <del>0</del> 26'43	19.26339 AU
min. Earth dist.	2465 Feb 19 13:23	0° <del>0</del> 29'28	17.37536 AU	retrograde	2473 Jan 14 09:12	10° <del>0</del> 54'17	
	2465 Mar 02 20:58	30° <del>0</del> 0		opposition	2473 Mar 28 20:21	8° <del>0</del> 51'42	0°45'39
direct	2465 May 05 04:13	28° <del>0</del> 25'53		min. Earth dist.	2473 Mar 29 15:11	8° <del>0</del> 49'39	17.26824 AU
	2465 Jul 05 06:32	0° <del>0</del>		direct	2473 Jun 13 05:04	6° <del>0</del> 45'06	
max. Earth dist.	2465 Aug 24 05:22	2° <del>0</del> 52'00	19.35891 AU				
				conjunction	2473 Oct 03 16:57	11° <del>0</del> 17'44	0°40'10

minimum elong	2473 Oct 03 16:57	11° <del>♄</del> 17'44	0°40'10	conjunction	2481 Nov 10 20:54	19° <del>♄</del> 10'29	0°20'25
max. Earth dist.	2473 Oct 02 19:28	11° <del>♄</del> 14'20	19.27410 AU	minimum elong	2481 Nov 10 20:55	19° <del>♄</del> 10'29	0°20'25
retrograde	2474 Jan 19 08:42	15° <del>♄</del> 41'30		max. Earth dist.	2481 Nov 10 11:57	19° <del>♄</del> 09'05	19.56297 AU
opposition	2474 Apr 02 22:07	13° <del>♄</del> 39'01	0°43'56	retrograde	2482 Feb 25 22:21	23° <del>♄</del> 28'55	
min. Earth dist.	2474 Apr 03 16:02	13° <del>♄</del> 37'04	17.28244 AU	opposition	2482 May 11 11:02	21° <del>♄</del> 27'55	0°20'57
direct	2474 Jun 18 09:42	11° <del>♄</del> 32'31		min. Earth dist.	2482 May 11 19:09	21° <del>♄</del> 27'03	17.58924 AU
				direct	2482 Jul 27 12:03	19° <del>♄</del> 23'30	
conjunction	2474 Oct 08 19:45	16° <del>♄</del> 04'51	0°38'30				
minimum elong	2474 Oct 08 19:45	16° <del>♄</del> 04'51	0°38'30	conjunction	2482 Nov 15 17:38	23° <del>♄</del> 48'36	0°17'10
max. Earth dist.	2474 Oct 08 00:27	16° <del>♄</del> 01'48	19.29173 AU	minimum elong	2482 Nov 15 17:38	23° <del>♄</del> 48'36	0°17'10
retrograde	2475 Jan 24 08:38	20° <del>♄</del> 28'09		max. Earth dist.	2482 Nov 15 09:32	23° <del>♄</del> 47'21	19.61636 AU
opposition	2475 Apr 07 23:58	18° <del>♄</del> 25'52	0°41'54	retrograde	2483 Mar 02 20:01	28° <del>♄</del> 06'09	
min. Earth dist.	2475 Apr 08 16:17	18° <del>♄</del> 24'06	17.30322 AU	opposition	2483 May 16 11:23	26° <del>♄</del> 05'16	0°17'16
direct	2475 Jun 23 14:45	16° <del>♄</del> 19'33		min. Earth dist.	2483 May 16 16:56	26° <del>♄</del> 04'40	17.64392 AU
				direct	2483 Aug 01 15:10	24° <del>♄</del> 01'08	
conjunction	2475 Oct 13 21:57	20° <del>♄</del> 51'25	0°36'33				
minimum elong	2475 Oct 13 21:57	20° <del>♄</del> 51'25	0°36'33	conjunction	2483 Nov 20 13:34	28° <del>♄</del> 24'52	0°13'50
max. Earth dist.	2475 Oct 13 03:31	20° <del>♄</del> 48'30	19.31582 AU	minimum elong	2483 Nov 20 13:34	28° <del>♄</del> 24'52	0°13'51
retrograde	2476 Jan 29 07:34	25° <del>♄</del> 14'14		behind sun begin	2483 Nov 20 10:03	28° <del>♄</del> 24'20	
opposition	2476 Apr 12 01:54	23° <del>♄</del> 12'07	0°39'36	behind sun end	2483 Nov 20 17:06	28° <del>♄</del> 25'24	
min. Earth dist.	2476 Apr 12 17:34	23° <del>♄</del> 10'25	17.33044 AU	max. Earth dist.	2483 Nov 20 08:11	28° <del>♄</del> 24'02	19.67241 AU
direct	2476 Jun 27 18:12	21° <del>♄</del> 06'01			2483 Dec 16 13:32	0° <del>♄</del>	
				retrograde	2484 Mar 06 14:24	2° <del>♄</del> 41'28	
conjunction	2476 Oct 17 23:31	25° <del>♄</del> 37'18	0°34'22	opposition	2484 May 20 11:11	0° <del>♄</del> 40'41	0°13'31
minimum elong	2476 Oct 17 23:31	25° <del>♄</del> 37'18	0°34'23	min. Earth dist.	2484 May 20 16:04	0° <del>♄</del> 40'10	17.70132 AU
max. Earth dist.	2476 Oct 17 06:58	25° <del>♄</del> 34'41	19.34598 AU		2484 Jun 05 21:36	30° <del>♄</del>	
retrograde	2477 Feb 02 07:53	29° <del>♄</del> 59'32		direct	2484 Aug 05 14:58	28° <del>♄</del> 36'51	
opposition	2477 Apr 17 03:45	27° <del>♄</del> 57'38	0°37'01		2484 Oct 02 11:13	0° <del>♄</del>	
min. Earth dist.	2477 Apr 17 17:31	27° <del>♄</del> 56'09	17.36312 AU				
direct	2477 Jul 02 23:04	25° <del>♄</del> 51'48		conjunction	2484 Nov 24 08:17	2° <del>♄</del> 59'08	0°10'27
	2477 Oct 17 02:42	0° <del>♄</del>		minimum elong	2484 Nov 24 08:17	2° <del>♄</del> 59'08	0°10'27
max. Earth dist.	2477 Oct 22 09:15	0° <del>♄</del> 19'57	19.38121 AU	behind sun begin	2484 Nov 24 03:05	2° <del>♄</del> 58'20	
				behind sun end	2484 Nov 24 13:29	2° <del>♄</del> 59'55	
conjunction	2477 Oct 23 00:32	0° <del>♄</del> 22'21	0°31'57	max. Earth dist.	2484 Nov 24 03:46	2° <del>♄</del> 58'27	19.73127 AU
minimum elong	2477 Oct 23 00:32	0° <del>♄</del> 22'21	0°31'57	retrograde	2485 Mar 11 10:15	7° <del>♄</del> 14'46	
retrograde	2478 Feb 07 06:05	4° <del>♄</del> 43'57		opposition	2485 May 25 10:20	5° <del>♄</del> 14'06	0°09'42
opposition	2478 Apr 22 05:40	2° <del>♄</del> 42'15	0°34'12	min. Earth dist.	2485 May 25 12:35	5° <del>♄</del> 13'52	17.76155 AU
min. Earth dist.	2478 Apr 22 19:04	2° <del>♄</del> 40'49	17.40077 AU	direct	2485 Aug 10 16:30	3° <del>♄</del> 10'34	
direct	2478 Jul 08 01:18	0° <del>♄</del> 36'41					
max. Earth dist.	2478 Oct 27 10:56	5° <del>♄</del> 04'12	19.42117 AU	conjunction	2485 Nov 29 02:07	7° <del>♄</del> 31'22	0°07'01
				minimum elong	2485 Nov 29 02:06	7° <del>♄</del> 31'22	0°07'00
conjunction	2478 Oct 28 00:50	5° <del>♄</del> 06'23	0°29'20	behind sun begin	2485 Nov 28 19:59	7° <del>♄</del> 30'26	
minimum elong	2478 Oct 28 00:50	5° <del>♄</del> 06'23	0°29'20	behind sun end	2485 Nov 29 08:13	7° <del>♄</del> 32'17	
retrograde	2479 Feb 12 06:25	9° <del>♄</del> 27'17		max. Earth dist.	2485 Nov 29 00:40	7° <del>♄</del> 31'10	19.79286 AU
opposition	2479 Apr 27 07:25	7° <del>♄</del> 25'47	0°31'10	retrograde	2486 Mar 16 03:16	11° <del>♄</del> 46'02	
min. Earth dist.	2479 Apr 27 18:35	7° <del>♄</del> 24'35	17.44269 AU	opposition	2486 May 30 09:01	9° <del>♄</del> 45'30	0°05'51
direct	2479 Jul 13 05:59	5° <del>♄</del> 20'29		min. Earth dist.	2486 May 30 10:05	9° <del>♄</del> 45'23	17.82455 AU
				direct	2486 Aug 15 15:40	7° <del>♄</del> 42'19	
conjunction	2479 Nov 02 00:16	9° <del>♄</del> 49'12	0°26'31				
minimum elong	2479 Nov 02 00:16	9° <del>♄</del> 49'12	0°26'31	conjunction	2486 Dec 03 18:48	12° <del>♄</del> 01'35	0°03'34
max. Earth dist.	2479 Nov 01 12:11	9° <del>♄</del> 47'18	19.46503 AU	minimum elong	2486 Dec 03 18:48	12° <del>♄</del> 01'35	0°03'35
retrograde	2480 Feb 17 03:22	14° <del>♄</del> 09'20		behind sun begin	2486 Dec 03 12:17	12° <del>♄</del> 00'36	
opposition	2480 May 01 09:04	12° <del>♄</del> 08'01	0°27'55	behind sun end	2486 Dec 04 01:20	12° <del>♄</del> 02'33	
min. Earth dist.	2480 May 01 19:55	12° <del>♄</del> 06'52	17.48839 AU	max. Earth dist.	2486 Dec 03 18:20	12° <del>♄</del> 01'32	19.85738 AU
direct	2480 Jul 17 07:22	10° <del>♄</del> 03'01		retrograde	2487 Mar 20 21:14	16° <del>♄</del> 15'19	
				opposition	2487 Jun 04 06:59	14° <del>♄</del> 14'55	0°02'00
conjunction	2480 Nov 05 22:58	14° <del>♄</del> 30'37	0°23'32	min. Earth dist.	2487 Jun 04 05:24	14° <del>♄</del> 15'05	17.89051 AU
minimum elong	2480 Nov 05 22:58	14° <del>♄</del> 30'37	0°23'31	direct	2487 Aug 20 14:37	12° <del>♄</del> 12'06	
max. Earth dist.	2480 Nov 05 11:49	14° <del>♄</del> 28'53	19.51251 AU				
	2480 Nov 13 18:17	15° <del>♄</del>		conjunction	2487 Dec 08 10:39	16° <del>♄</del> 29'51	0°00'04
retrograde	2481 Feb 21 02:36	18° <del>♄</del> 49'56		minimum elong	2487 Dec 08 10:39	16° <del>♄</del> 29'51	0°00'03
opposition	2481 May 06 10:04	16° <del>♄</del> 48'46	0°24'30	behind sun begin	2487 Dec 08 04:56	16° <del>♄</del> 29'00	
min. Earth dist.	2481 May 06 18:35	16° <del>♄</del> 47'52	17.53735 AU	behind sun end	2487 Dec 08 16:22	16° <del>♄</del> 30'42	
	2481 Jun 27 09:08	15° <del>♄</del>		max. Earth dist.	2487 Dec 08 13:21	16° <del>♄</del> 30'12	19.92460 AU
direct	2481 Jul 22 11:20	14° <del>♄</del> 44'03		desc. node	2487 Dec 13 21:11	16° <del>♄</del> 49'56	
	2481 Aug 16 04:29	15° <del>♄</del>		retrograde	2488 Mar 24 13:32	20° <del>♄</del> 42'39	
				opposition	2488 Jun 08 04:20	18° <del>♄</del> 42'26	0°-1'-49

min. Earth dist.	2488 Jun 08 01:19	18° <del>2</del> 42'45	17.95880 AU	min. Earth dist.	2495 Jul 10 02:05	19° <del>3</del> 06'18	18.44738 AU
direct	2488 Aug 24 12:09	16° <del>2</del> 40'03		direct	2495 Sep 25 16:02	17° <del>3</del> 05'23	
conjunction	2488 Dec 12 01:32	20° <del>2</del> 56'16	0°-3'-26	conjunction	2496 Jan 11 11:49	21° <del>3</del> 11'05	0°-25'-14
minimum elong	2488 Dec 12 01:31	20° <del>2</del> 56'15	0°03'27	minimum elong	2496 Jan 11 11:48	21° <del>3</del> 11'05	0°25'15
behind sun begin	2488 Dec 11 19:00	20° <del>2</del> 55'17		max. Earth dist.	2496 Jan 12 02:25	21° <del>3</del> 13'16	20.47937 AU
behind sun end	2488 Dec 12 08:02	20° <del>2</del> 57'14		retrograde	2496 Apr 28 09:15	25° <del>3</del> 17'03	
max. Earth dist.	2488 Dec 12 05:02	20° <del>2</del> 56'45	19.99394 AU	opposition	2496 Jul 14 07:19	23° <del>3</del> 18'04	0°-29'-25
retrograde	2489 Mar 29 05:43	25° <del>2</del> 08'09		min. Earth dist.	2496 Jul 13 16:22	23° <del>3</del> 19'35	18.51058 AU
opposition	2489 Jun 13 00:53	23° <del>2</del> 08'08	0°-5'-36	direct	2496 Sep 29 07:41	21° <del>3</del> 18'48	
min. Earth dist.	2489 Jun 12 19:41	23° <del>2</del> 08'40	18.02900 AU				
direct	2489 Aug 29 08:18	21° <del>2</del> 06'10		conjunction	2497 Jan 14 20:31	25° <del>3</del> 23'05	0°-27'-51
				minimum elong	2497 Jan 14 20:31	25° <del>3</del> 23'05	0°27'52
conjunction	2489 Dec 16 15:42	25° <del>2</del> 20'52	0°-6'-48	max. Earth dist.	2497 Jan 15 11:30	25° <del>3</del> 25'18	20.54119 AU
minimum elong	2489 Dec 16 15:42	25° <del>2</del> 20'52	0°06'49	retrograde	2497 May 02 20:12	29° <del>3</del> 28'17	
behind sun begin	2489 Dec 16 09:35	25° <del>2</del> 19'57		opposition	2497 Jul 18 22:32	27° <del>3</del> 29'19	0°-32'-13
behind sun end	2489 Dec 16 21:49	25° <del>2</del> 21'46		min. Earth dist.	2497 Jul 18 07:09	27° <del>3</del> 30'52	18.57121 AU
max. Earth dist.	2489 Dec 16 22:10	25° <del>2</del> 21'50	20.06477 AU	direct	2497 Oct 03 21:00	25° <del>3</del> 30'19	
retrograde	2490 Apr 02 21:18	29° <del>2</del> 31'51					
opposition	2490 Jun 17 21:02	27° <del>2</del> 32'03	0°-9'-20	conjunction	2498 Jan 19 04:41	29° <del>3</del> 33'14	0°-30'-18
min. Earth dist.	2490 Jun 17 14:18	27° <del>2</del> 32'44	18.10022 AU	minimum elong	2498 Jan 19 04:41	29° <del>3</del> 33'14	0°30'20
direct	2490 Sep 03 04:01	25° <del>2</del> 30'32		max. Earth dist.	2498 Jan 19 21:34	29° <del>3</del> 35'44	20.60058 AU
					2498 Jan 26 17:24	0° <del>≈</del>	
conjunction	2490 Dec 21 04:47	29° <del>2</del> 43'41	0°-10'-7	retrograde	2498 May 07 08:08	3° <del>≈</del> 37'42	
minimum elong	2490 Dec 21 04:47	29° <del>2</del> 43'41	0°10'08	opposition	2498 Jul 23 12:57	1° <del>≈</del> 38'44	0°-34'-50
behind sun begin	2490 Dec 20 23:29	29° <del>2</del> 42'54		min. Earth dist.	2498 Jul 22 19:44	1° <del>≈</del> 40'28	18.62940 AU
behind sun end	2490 Dec 21 10:04	29° <del>2</del> 44'28			2498 Sep 09 18:26	30° <del>R</del> <del>3</del>	
max. Earth dist.	2490 Dec 21 12:00	29° <del>2</del> 44'46	20.13629 AU	direct	2498 Oct 08 11:11	29° <del>3</del> 40'00	
	2490 Dec 25 15:58	0° <del>3</del>			2498 Nov 05 12:32	0° <del>≈</del>	
retrograde	2491 Apr 07 12:40	3° <del>3</del> 53'49					
opposition	2491 Jun 22 16:30	1° <del>3</del> 54'11	0°-12'-59	conjunction	2499 Jan 23 11:57	3° <del>≈</del> 41'35	0°-32'-34
min. Earth dist.	2491 Jun 22 08:04	1° <del>3</del> 55'03	18.17191 AU	minimum elong	2499 Jan 23 11:57	3° <del>≈</del> 41'35	0°32'35
	2491 Aug 22 08:19	30° <del>R</del> <del>2</del>		max. Earth dist.	2499 Jan 24 05:28	3° <del>≈</del> 44'10	20.65762 AU
direct	2491 Sep 07 22:05	29° <del>2</del> 53'06		retrograde	2499 May 11 17:35	7° <del>≈</del> 45'23	
	2491 Sep 24 07:02	0° <del>3</del>		min. Earth dist.	2499 Jul 27 09:08	5° <del>≈</del> 48'12	18.68557 AU
				opposition	2499 Jul 28 02:43	5° <del>≈</del> 46'26	0°-37'-14
conjunction	2491 Dec 25 17:20	4° <del>3</del> 04'44	0°-13'-21	direct	2499 Oct 12 22:18	3° <del>≈</del> 47'56	
minimum elong	2491 Dec 25 17:21	4° <del>3</del> 04'44	0°13'22				
behind sun begin	2491 Dec 25 13:29	4° <del>3</del> 04'10		conjunction	2500 Jan 27 18:53	7° <del>≈</del> 48'18	0°-34'-39
behind sun end	2491 Dec 25 21:12	4° <del>3</del> 05'19		minimum elong	2500 Jan 27 18:53	7° <del>≈</del> 48'18	0°34'41
max. Earth dist.	2491 Dec 26 03:08	4° <del>3</del> 06'13	20.20781 AU	max. Earth dist.	2500 Jan 28 14:12	7° <del>≈</del> 51'08	20.71273 AU
retrograde	2492 Apr 11 03:14	8° <del>3</del> 13'59		retrograde	2500 May 16 04:29	11° <del>≈</del> 51'28	
opposition	2492 Jun 26 11:06	6° <del>3</del> 14'34	0°-16'-32	opposition	2500 Aug 01 15:27	9° <del>≈</del> 52'33	0°-39'-26
min. Earth dist.	2492 Jun 26 01:13	6° <del>3</del> 15'35	18.24308 AU	min. Earth dist.	2500 Jul 31 19:59	9° <del>≈</del> 54'30	18.73964 AU
direct	2492 Sep 11 15:49	4° <del>3</del> 13'54		direct	2500 Oct 17 10:49	7° <del>≈</del> 54'19	
conjunction	2492 Dec 29 05:02	8° <del>3</del> 24'02	0°-16'-30	conjunction	2501 Feb 01 01:10	11° <del>≈</del> 53'32	0°-36'-33
minimum elong	2492 Dec 29 05:02	8° <del>3</del> 24'02	0°16'32	minimum elong	2501 Feb 01 01:10	11° <del>≈</del> 53'32	0°36'33
max. Earth dist.	2492 Dec 29 15:15	8° <del>3</del> 25'34	20.27847 AU	max. Earth dist.	2501 Feb 01 21:00	11° <del>≈</del> 56'27	20.76571 AU
retrograde	2493 Apr 15 17:41	12° <del>3</del> 32'26			2501 Apr 02 10:27	15° <del>≈</del>	
opposition	2493 Jul 01 05:15	10° <del>3</del> 33'10	0°-19'-58	retrograde	2501 May 20 13:20	15° <del>≈</del> 56'11	
min. Earth dist.	2493 Jun 30 18:12	10° <del>3</del> 34'17	18.31320 AU		2501 Jul 09 16:02	15° <del>R</del> <del>≈</del>	
direct	2493 Sep 16 08:25	8° <del>3</del> 32'53		min. Earth dist.	2501 Aug 05 08:13	13° <del>≈</del> 59'16	18.79168 AU
				opposition	2501 Aug 06 03:52	13° <del>≈</del> 57'18	0°-41'-24
conjunction	2494 Jan 02 16:00	12° <del>3</del> 41'32	0°-19'-33	direct	2501 Oct 21 19:42	11° <del>≈</del> 59'21	
minimum elong	2494 Jan 02 16:00	12° <del>3</del> 41'32	0°19'33		2502 Jan 19 18:13	15° <del>≈</del>	
max. Earth dist.	2494 Jan 03 04:25	12° <del>3</del> 43'24	20.34767 AU				
retrograde	2494 Apr 20 07:26	16° <del>3</del> 49'06		conjunction	2502 Feb 05 07:00	15° <del>≈</del> 57'30	0°-38'-15
opposition	2494 Jul 05 22:41	14° <del>3</del> 49'58	0°-23'-17	minimum elong	2502 Feb 05 06:59	15° <del>≈</del> 57'30	0°38'16
min. Earth dist.	2494 Jul 05 10:03	14° <del>3</del> 51'15	18.38138 AU	max. Earth dist.	2502 Feb 06 04:26	16° <del>≈</del> 00'38	20.81659 AU
direct	2494 Sep 21 01:02	12° <del>3</del> 50'04		retrograde	2502 May 24 23:25	19° <del>≈</del> 59'40	
				opposition	2502 Aug 10 15:32	18° <del>≈</del> 00'51	0°-43'-10
conjunction	2495 Jan 07 02:13	16° <del>3</del> 57'14	0°-22'-27	min. Earth dist.	2502 Aug 09 18:02	18° <del>≈</del> 03'00	18.84127 AU
minimum elong	2495 Jan 07 02:13	16° <del>3</del> 57'14	0°22'28	direct	2502 Oct 26 07:03	16° <del>≈</del> 03'12	
max. Earth dist.	2495 Jan 07 14:57	16° <del>3</del> 59'08	20.41473 AU				
retrograde	2495 Apr 24 20:25	21° <del>3</del> 04'00		conjunction	2503 Feb 09 12:28	20° <del>≈</del> 00'22	0°-39'-45
opposition	2495 Jul 10 15:26	19° <del>3</del> 04'57	0°-26'-26	minimum elong	2503 Feb 09 12:28	20° <del>≈</del> 00'22	0°39'46

max. Earth dist.	2503 Feb 10 10:16	20° <del>03</del> '32	20.86477 AU	max. Earth dist.	2511 Mar 14 01:21	22° <del>00</del> '21	21.09810 AU
retrograde	2503 May 29 08:14	24° <del>02</del> '08		retrograde	2511 Jun 30 23:47	25° <del>57</del> '25	
min. Earth dist.	2503 Aug 14 05:26	22° <del>05</del> '30	18.88812 AU	min. Earth dist.	2511 Sep 16 06:30	24° <del>00</del> '40	19.10229 AU
opposition	2503 Aug 15 02:40	22° <del>03</del> '23	0°-44'-43	opposition	2511 Sep 17 03:24	23° <del>58</del> '35	0°-48'-43
direct	2503 Oct 30 14:22	20° <del>06</del> '00		direct	2511 Dec 01 21:55	22° <del>02</del> '21	
conjunction	2504 Feb 13 17:45	24° <del>02</del> '17	0°-41'-3	conjunction	2512 Mar 16 07:18	25° <del>54</del> '14	0°-43'-54
minimum elong	2504 Feb 13 17:45	24° <del>02</del> '17	0°41'04	minimum elong	2512 Mar 16 07:18	25° <del>54</del> '14	0°43'55
max. Earth dist.	2504 Feb 14 16:42	24° <del>05</del> '37	20.91001 AU	max. Earth dist.	2512 Mar 17 06:06	25° <del>57</del> '30	21.10454 AU
retrograde	2504 Jun 01 17:31	28° <del>03</del> '41		retrograde	2512 Jul 04 08:13	29° <del>54</del> '33	
opposition	2504 Aug 18 13:11	26° <del>05</del> '01	0°-46'-1	opposition	2512 Sep 20 10:40	27° <del>55</del> '36	0°-48'-10
min. Earth dist.	2504 Aug 17 14:26	26° <del>07</del> '17	18.93155 AU	min. Earth dist.	2512 Sep 19 13:01	27° <del>57</del> '46	19.10650 AU
direct	2504 Nov 03 00:17	24° <del>07</del> '55		direct	2512 Dec 05 03:59	25° <del>59</del> '21	
conjunction	2505 Feb 16 22:37	28° <del>03</del> '23	0°-42'-9	conjunction	2513 Mar 20 11:44	29° <del>51</del> '03	0°-43'-18
minimum elong	2505 Feb 16 22:37	28° <del>03</del> '23	0°42'11	minimum elong	2513 Mar 20 11:44	29° <del>51</del> '03	0°43'18
max. Earth dist.	2505 Feb 17 21:37	28° <del>06</del> '43	20.95148 AU	max. Earth dist.	2513 Mar 21 09:59	29° <del>54</del> '13	21.10661 AU
	2505 Mar 23 22:05	0° <del>04</del> '31			2513 Mar 23 02:27	0° <del>51</del> '28	
retrograde	2505 Jun 06 01:55	2° <del>04</del> '31		retrograde	2513 Jul 08 14:05	3° <del>52</del> '23	0°-47'-23
opposition	2505 Aug 22 23:26	0° <del>05</del> '54	0°-47'-7	opposition	2513 Sep 24 17:53	1° <del>54</del> '25	19.10664 AU
min. Earth dist.	2505 Aug 22 01:19	0° <del>08</del> '06	18.97113 AU	min. Earth dist.	2513 Sep 23 21:32	30° <del>56</del> '08	
	2505 Aug 25 10:38	30° <del>09</del> '03			2513 Nov 26 23:08	0° <del>52</del> '50	
direct	2505 Nov 07 06:58	28° <del>09</del> '03		direct	2513 Dec 09 08:05	29° <del>56</del> '08	
	2506 Jan 14 15:42	0° <del>43</del> '-2			2513 Dec 21 14:28	0° <del>42</del> '-29	
conjunction	2506 Feb 21 03:33	2° <del>03</del> '48	0°-43'-2	conjunction	2514 Mar 24 16:33	3° <del>50</del> '55	21.10489 AU
minimum elong	2506 Feb 21 03:33	2° <del>03</del> '48	0°43'03	minimum elong	2514 Mar 24 16:33	3° <del>50</del> '55	21.10489 AU
max. Earth dist.	2506 Feb 22 03:20	2° <del>07</del> '14	20.98894 AU	max. Earth dist.	2514 Mar 25 14:53	7° <del>48</del> '18	
retrograde	2506 Jun 10 10:45	6° <del>04</del> '41		retrograde	2514 Jul 12 22:47	5° <del>51</del> '13	19.10299 AU
min. Earth dist.	2506 Aug 26 09:49	4° <del>08</del> '26	19.00629 AU	min. Earth dist.	2514 Sep 28 03:38	5° <del>49</del> '07	0°-46'-23
opposition	2506 Aug 27 09:04	4° <del>06</del> '07	0°-47'-58	opposition	2514 Sep 29 00:38	3° <del>52</del> '50	
direct	2506 Nov 11 15:26	2° <del>09</del> '30		direct	2514 Dec 13 13:23		
conjunction	2507 Feb 25 08:15	6° <del>03</del> '35	0°-43'-43	conjunction	2515 Mar 28 21:31	7° <del>44</del> '27	0°-41'-29
minimum elong	2507 Feb 25 08:15	6° <del>03</del> '35	0°43'45	minimum elong	2515 Mar 28 21:31	7° <del>44</del> '27	0°41'30
max. Earth dist.	2507 Feb 26 07:41	6° <del>06</del> '57	21.02158 AU	max. Earth dist.	2515 Mar 29 19:03	11° <del>45</del> '15	
retrograde	2507 Jun 14 18:23	10° <del>04</del> '17		retrograde	2515 Jul 17 05:21	9° <del>47</del> '56	19.09550 AU
opposition	2507 Aug 31 18:28	8° <del>05</del> '44	0°-48'-36	min. Earth dist.	2515 Oct 02 11:56	9° <del>45</del> '58	0°-45'-10
min. Earth dist.	2507 Aug 30 20:19	8° <del>07</del> '56	19.03643 AU	opposition	2515 Oct 03 07:26	7° <del>49</del> '40	
direct	2507 Nov 15 21:29	6° <del>09</del> '17		direct	2515 Dec 17 17:04		
conjunction	2508 Feb 29 13:04	10° <del>02</del> '48	0°-44'-11	conjunction	2516 Apr 01 02:50	11° <del>41</del> '24	0°-40'-17
minimum elong	2508 Feb 29 13:04	10° <del>02</del> '48	0°44'11	minimum elong	2516 Apr 01 02:50	11° <del>41</del> '24	0°40'19
max. Earth dist.	2508 Mar 01 12:45	10° <del>06</del> '12	21.04900 AU	max. Earth dist.	2516 Apr 02 00:12	15° <del>42</del> '30	
retrograde	2508 Jun 18 02:53	14° <del>03</del> '20		retrograde	2516 Jul 20 14:28	13° <del>43</del> '09	0°-43'-44
min. Earth dist.	2508 Sep 03 04:11	12° <del>07</del> '03	19.06102 AU	opposition	2516 Oct 06 13:56	13° <del>45</del> '09	19.08416 AU
opposition	2508 Sep 04 03:08	12° <del>04</del> '46	0°-48'-59	min. Earth dist.	2516 Oct 05 18:00	11° <del>46</del> '48	
direct	2508 Nov 19 05:09	10° <del>08</del> '27		direct	2516 Dec 20 22:25		
conjunction	2509 Mar 04 17:40	14° <del>01</del> '27	0°-44'-26	conjunction	2517 Apr 05 08:28	15° <del>38</del> '46	0°-38'-54
minimum elong	2509 Mar 04 17:40	14° <del>01</del> '27	0°44'27	minimum elong	2517 Apr 05 08:28	15° <del>38</del> '46	0°38'55
max. Earth dist.	2509 Mar 05 16:43	14° <del>04</del> '45	21.07075 AU	max. Earth dist.	2517 Apr 06 04:52	19° <del>40</del> '14	
retrograde	2509 Jun 22 09:31	18° <del>01</del> '52		retrograde	2517 Jul 24 21:42	17° <del>42</del> '39	19.06886 AU
opposition	2509 Sep 08 11:44	16° <del>03</del> '15	0°-49'-8	opposition	2517 Oct 10 20:41	15° <del>44</del> '27	
min. Earth dist.	2509 Sep 07 14:07	16° <del>05</del> '24	19.08002 AU	min. Earth dist.	2517 Oct 10 02:28		
direct	2509 Nov 23 10:21	14° <del>07</del> '00		direct	2517 Dec 25 01:40		
conjunction	2510 Mar 08 22:12	17° <del>59</del> '33	0°-44'-28	conjunction	2518 Apr 09 14:34	19° <del>36</del> '43	0°-37'-19
minimum elong	2510 Mar 08 22:12	17° <del>59</del> '33	0°44'29	minimum elong	2518 Apr 09 14:34	19° <del>39</del> '34	21.05941 AU
max. Earth dist.	2510 Mar 09 21:28	18° <del>02</del> '53	21.08709 AU	max. Earth dist.	2518 Apr 10 10:32	23° <del>38</del> '37	
retrograde	2510 Jun 26 17:59	21° <del>59</del> '53		retrograde	2518 Jul 29 07:45	21° <del>41</del> '00	19.04933 AU
opposition	2510 Sep 12 19:46	20° <del>01</del> '10	0°-49'-3	min. Earth dist.	2518 Oct 14 09:00	21° <del>39</del> '09	0°-40'-15
min. Earth dist.	2510 Sep 11 21:27	20° <del>03</del> '23	19.09362 AU	opposition	2518 Oct 15 03:17	19° <del>42</del> '44	
direct	2510 Nov 27 17:28	18° <del>04</del> '57		direct	2518 Dec 29 07:24		
conjunction	2511 Mar 13 02:42	21° <del>57</del> '07	0°-44'-17	conjunction	2519 Apr 13 21:16	23° <del>35</del> '26	0°-35'-34
minimum elong	2511 Mar 13 02:42	21° <del>57</del> '07	0°44'18	minimum elong	2519 Apr 13 21:16	23° <del>35</del> '26	0°35'35

max. Earth dist.	2519 Apr 14 15:53	23° $\Upsilon$ 38'05	21.03757 AU	conjunction	2527 May 17 00:31	25° $\text{8}$ 59'50	0°-15'-46
retrograde	2519 Aug 02 15:27	27° $\Upsilon$ 37'49		minimum elong	2527 May 17 00:31	25° $\text{8}$ 59'50	0°15'46
opposition	2519 Oct 19 09:59	25° $\Upsilon$ 38'17	0°-38'-13	behind sun begin	2527 May 16 23:45	25° $\text{8}$ 59'44	
min. Earth dist.	2519 Oct 18 17:53	25° $\Upsilon$ 39'55	19.02513 AU	behind sun end	2527 May 17 01:16	25° $\text{8}$ 59'57	
direct	2520 Jan 02 10:41	23° $\Upsilon$ 41'47		max. Earth dist.	2527 May 17 07:18	26° $\text{8}$ 00'48	20.69177 AU
					2527 Aug 18 23:43	0° $\text{II}$	
conjunction	2520 Apr 17 04:36	27° $\Upsilon$ 35'01	0°-33'-37	retrograde	2527 Sep 05 04:43	0° $\text{II}$ 07'23	
minimum elong	2520 Apr 17 04:36	27° $\Upsilon$ 35'01	0°33'38		2527 Sep 22 11:12	30° $\text{R}$ $\text{8}$	
max. Earth dist.	2520 Apr 17 22:14	27° $\Upsilon$ 37'32	21.01100 AU	opposition	2527 Nov 20 22:01	28° $\text{8}$ 06'33	0°-15'-43
	2520 Jun 01 11:18	0° $\text{8}$		min. Earth dist.	2527 Nov 20 16:57	28° $\text{8}$ 07'05	18.66257 AU
retrograde	2520 Aug 06 02:14	1° $\text{8}$ 37'56		direct	2528 Feb 03 13:01	26° $\text{8}$ 08'03	
	2520 Oct 13 17:53	30° $\text{R}$ $\Upsilon$			2528 May 18 04:58	0° $\text{II}$	
opposition	2520 Oct 22 16:49	29° $\Upsilon$ 38'19	0°-35'-59				
min. Earth dist.	2520 Oct 22 01:02	29° $\Upsilon$ 39'55	18.99592 AU	conjunction	2528 May 20 12:57	0° $\text{II}$ 08'07	0°-12'-44
direct	2521 Jan 05 16:54	27° $\Upsilon$ 41'42		minimum elong	2528 May 20 12:57	0° $\text{II}$ 08'07	0°12'45
	2521 Mar 23 21:20	0° $\text{8}$		behind sun begin	2528 May 20 08:50	0° $\text{II}$ 07'32	
				behind sun end	2528 May 20 17:05	0° $\text{II}$ 08'42	
conjunction	2521 Apr 21 12:19	1° $\text{8}$ 35'32	0°-31'-31	max. Earth dist.	2528 May 20 18:06	0° $\text{II}$ 08'51	20.63318 AU
minimum elong	2521 Apr 21 12:19	1° $\text{8}$ 35'32	0°31'32	retrograde	2528 Sep 08 18:10	4° $\text{II}$ 16'29	
max. Earth dist.	2521 Apr 22 04:18	1° $\text{8}$ 37'48	20.97912 AU	opposition	2528 Nov 24 06:45	2° $\text{II}$ 15'28	0°-12'-19
retrograde	2521 Aug 10 10:48	5° $\text{8}$ 39'01		min. Earth dist.	2528 Nov 24 02:11	2° $\text{II}$ 15'57	18.60305 AU
min. Earth dist.	2521 Oct 26 10:35	3° $\text{8}$ 40'39	18.96135 AU	direct	2529 Feb 06 21:41	0° $\text{II}$ 16'38	
opposition	2521 Oct 27 00:01	3° $\text{8}$ 39'17	0°-33'-34				
direct	2522 Jan 09 21:04	1° $\text{8}$ 42'31		conjunction	2529 May 25 02:09	4° $\text{II}$ 17'55	0°-9'-37
				minimum elong	2529 May 25 02:08	4° $\text{II}$ 17'55	0°09'38
conjunction	2522 Apr 25 20:53	5° $\text{8}$ 37'00	0°-29'-14	behind sun begin	2529 May 24 20:37	4° $\text{II}$ 17'08	
minimum elong	2522 Apr 25 20:54	5° $\text{8}$ 37'00	0°29'15	behind sun end	2529 May 25 07:40	4° $\text{II}$ 18'42	
max. Earth dist.	2522 Apr 26 11:29	5° $\text{8}$ 39'05	20.94202 AU	max. Earth dist.	2529 May 25 06:00	4° $\text{II}$ 18'27	20.57277 AU
retrograde	2522 Aug 14 21:55	9° $\text{8}$ 41'05		retrograde	2529 Sep 13 06:18	8° $\text{II}$ 27'08	
opposition	2522 Oct 31 07:05	7° $\text{8}$ 41'12	0°-30'-58	opposition	2529 Nov 28 16:05	6° $\text{II}$ 25'59	0°-8'-50
min. Earth dist.	2522 Oct 30 18:14	7° $\text{8}$ 42'31	18.92156 AU	min. Earth dist.	2529 Nov 28 13:33	6° $\text{II}$ 26'15	18.54186 AU
direct	2523 Jan 14 03:46	5° $\text{8}$ 44'13		direct	2530 Feb 11 05:45	4° $\text{II}$ 26'50	
conjunction	2523 Apr 30 05:59	9° $\text{8}$ 39'26	0°-26'-48	conjunction	2530 May 29 16:21	8° $\text{II}$ 29'24	0°-6'-27
minimum elong	2523 Apr 30 05:59	9° $\text{8}$ 39'26	0°26'50	minimum elong	2530 May 29 16:22	8° $\text{II}$ 29'24	0°06'28
max. Earth dist.	2523 Apr 30 18:44	9° $\text{8}$ 41'15	20.89970 AU	behind sun begin	2530 May 29 10:02	8° $\text{II}$ 28'30	
retrograde	2523 Aug 19 07:32	13° $\text{8}$ 44'08		behind sun end	2530 May 29 22:41	8° $\text{II}$ 30'17	
opposition	2523 Nov 04 14:30	11° $\text{8}$ 44'05	0°-28'-12	max. Earth dist.	2530 May 29 18:17	8° $\text{II}$ 29'39	20.51101 AU
min. Earth dist.	2523 Nov 04 04:04	11° $\text{8}$ 45'09	18.87683 AU	retrograde	2530 Sep 17 21:05	12° $\text{II}$ 39'30	
direct	2524 Jan 18 08:56	9° $\text{8}$ 46'50		opposition	2530 Dec 03 01:42	10° $\text{II}$ 38'13	0°-5'-16
				min. Earth dist.	2530 Dec 02 23:58	10° $\text{II}$ 38'24	18.47936 AU
conjunction	2524 May 03 15:33	13° $\text{8}$ 42'51	0°-24'-14	direct	2531 Feb 15 16:11	8° $\text{II}$ 38'44	
minimum elong	2524 May 03 15:34	13° $\text{8}$ 42'51	0°24'15				
max. Earth dist.	2524 May 04 02:54	13° $\text{8}$ 44'28	20.85290 AU	conjunction	2531 Jun 03 07:34	12° $\text{II}$ 42'41	0°-3'-13
	2524 May 26 09:39	15° $\text{8}$		minimum elong	2531 Jun 03 07:33	12° $\text{II}$ 42'41	0°03'14
retrograde	2524 Aug 22 18:53	17° $\text{8}$ 48'13		behind sun begin	2531 Jun 03 00:51	12° $\text{II}$ 41'44	
opposition	2524 Nov 07 21:57	15° $\text{8}$ 47'58	0°-25'-17	behind sun end	2531 Jun 03 14:16	12° $\text{II}$ 43'38	
min. Earth dist.	2524 Nov 07 12:02	15° $\text{8}$ 48'59	18.82793 AU	max. Earth dist.	2531 Jun 03 08:11	12° $\text{II}$ 42'45	20.44775 AU
	2524 Nov 27 22:44	15° $\text{R}$ $\text{8}$		retrograde	2531 Sep 22 10:18	16° $\text{II}$ 53'42	
direct	2525 Jan 21 15:58	13° $\text{8}$ 50'25		opposition	2531 Dec 07 12:05	14° $\text{II}$ 52'19	0°-1'-39
	2525 Mar 15 13:19	15° $\text{8}$		min. Earth dist.	2531 Dec 07 12:29	14° $\text{II}$ 52'17	18.41538 AU
				direct	2532 Feb 20 01:09	12° $\text{II}$ 52'32	
conjunction	2525 May 08 01:50	17° $\text{8}$ 47'20	0°-21'-31	asc. node	2532 May 24 10:52	16° $\text{II}$ 10'32	
minimum elong	2525 May 08 01:50	17° $\text{8}$ 47'20	0°21'33				
max. Earth dist.	2525 May 08 11:36	17° $\text{8}$ 48'43	20.80215 AU	conjunction	2532 Jun 06 23:27	16° $\text{II}$ 57'53	0°00'08
retrograde	2525 Aug 27 05:21	21° $\text{8}$ 53'23		minimum elong	2532 Jun 06 23:28	16° $\text{II}$ 57'53	0°00'08
opposition	2525 Nov 12 05:44	19° $\text{8}$ 52'56	0°-22'-13	behind sun begin	2532 Jun 06 16:53	16° $\text{II}$ 56'57	
min. Earth dist.	2525 Nov 11 22:02	19° $\text{8}$ 53'44	18.77553 AU	behind sun end	2532 Jun 07 06:04	16° $\text{II}$ 58'50	
direct	2526 Jan 25 22:10	17° $\text{8}$ 55'05		max. Earth dist.	2532 Jun 06 21:51	16° $\text{II}$ 57'43	20.38315 AU
				retrograde	2532 Sep 26 02:37	21° $\text{II}$ 09'52	
conjunction	2526 May 12 12:47	21° $\text{8}$ 52'57	0°-18'-42	opposition	2532 Dec 10 23:01	19° $\text{II}$ 08'22	0°01'59
minimum elong	2526 May 12 12:47	21° $\text{8}$ 52'57	0°18'43	min. Earth dist.	2532 Dec 11 00:32	19° $\text{II}$ 08'13	18.35000 AU
max. Earth dist.	2526 May 12 21:04	21° $\text{8}$ 54'08	20.74836 AU	direct	2533 Feb 23 13:24	17° $\text{II}$ 08'15	
retrograde	2526 Aug 31 17:42	25° $\text{8}$ 59'45					
opposition	2526 Nov 16 13:41	23° $\text{8}$ 59'05	0°-19'-1	conjunction	2533 Jun 11 16:39	21° $\text{II}$ 15'07	0°03'30
min. Earth dist.	2526 Nov 16 06:31	23° $\text{8}$ 59'50	18.72028 AU	minimum elong	2533 Jun 11 16:39	21° $\text{II}$ 15'07	0°03'30
direct	2527 Jan 30 05:44	22° $\text{8}$ 00'54		behind sun begin	2533 Jun 11 09:57	21° $\text{II}$ 14'09	

behind sun end	2533 Jun 11 23:22	21°II16'04		min. Earth dist.	2541 Jan 15 04:49	24°☾24'08	17.79194 AU
max. Earth dist.	2533 Jun 11 13:41	21°II14'43	20.31684 AU	direct	2541 Mar 30 11:39	22°☾22'09	
retrograde	2533 Sep 30 17:13	25°II28'01					
opposition	2533 Dec 15 10:37	23°II26'26	0°05'40	conjunction	2541 Jul 18 17:45	26°☾41'27	0°28'26
min. Earth dist.	2533 Dec 15 14:22	23°II26'02	18.28284 AU	minimum elong	2541 Jul 18 17:45	26°☾41'27	0°28'26
direct	2534 Feb 28 00:12	21°II25'57		max. Earth dist.	2541 Jul 18 00:34	26°☾38'51	19.75918 AU
					2541 Sep 18 07:08	0°♈	
conjunction	2534 Jun 16 10:47	25°II34'20	0°06'49	retrograde	2541 Nov 05 23:04	1°♈01'19	
minimum elong	2534 Jun 16 10:47	25°II34'20	0°06'49		2541 Dec 25 14:30	30°♈	
behind sun begin	2534 Jun 16 04:30	25°II33'25		opposition	2542 Jan 19 07:19	28°☾58'33	0°33'05
behind sun end	2534 Jun 16 17:04	25°II35'14		min. Earth dist.	2542 Jan 19 22:18	28°☾56'55	17.72724 AU
max. Earth dist.	2534 Jun 16 04:56	25°II33'29	20.24885 AU	direct	2542 Apr 04 05:42	26°☾54'37	
retrograde	2534 Oct 05 10:40	29°II48'10			2542 Jul 02 20:34	0°♈	
opposition	2534 Dec 19 22:54	27°II46'28	0°09'21				
min. Earth dist.	2534 Dec 20 04:06	27°II45'55	18.21396 AU	conjunction	2542 Jul 23 18:25	1°♈15'27	0°31'02
direct	2535 Mar 04 13:52	25°II45'35		minimum elong	2542 Jul 23 18:25	1°♈15'27	0°31'02
				max. Earth dist.	2542 Jul 22 22:53	1°♈12'28	19.69615 AU
conjunction	2535 Jun 21 05:55	29°II55'31	0°10'06	retrograde	2542 Nov 10 20:38	5°♈36'05	
minimum elong	2535 Jun 21 05:55	29°II55'31	0°10'06	opposition	2543 Jan 24 01:08	3°♈33'14	0°35'54
behind sun begin	2535 Jun 21 00:32	29°II54'44		min. Earth dist.	2543 Jan 24 17:31	3°♈31'27	17.66617 AU
behind sun end	2535 Jun 21 11:17	29°II56'17		direct	2543 Apr 09 00:43	1°♈28'56	
max. Earth dist.	2535 Jun 20 22:44	29°II54'28	20.17900 AU				
	2535 Jun 22 12:16	0°☾		conjunction	2543 Jul 28 19:46	5°♈51'16	0°33'27
retrograde	2535 Oct 10 03:01	4°☾10'16		minimum elong	2543 Jul 28 19:46	5°♈51'16	0°33'27
opposition	2535 Dec 24 11:51	2°☾08'25	0°13'00	max. Earth dist.	2543 Jul 28 00:19	5°♈48'18	19.63693 AU
min. Earth dist.	2535 Dec 24 19:04	2°☾07'39	18.14339 AU	retrograde	2543 Nov 15 18:52	10°♈12'38	
direct	2536 Mar 08 02:58	0°☾07'08		opposition	2544 Jan 28 19:37	8°♈09'45	0°38'30
				min. Earth dist.	2544 Jan 29 12:06	8°♈07'57	17.60897 AU
conjunction	2536 Jun 25 01:47	4°☾18'36	0°13'22	direct	2544 Apr 12 20:38	6°♈05'09	
minimum elong	2536 Jun 25 01:47	4°☾18'36	0°13'22				
behind sun begin	2536 Jun 24 22:05	4°☾18'03		conjunction	2544 Aug 01 21:46	10°♈28'56	0°35'41
behind sun end	2536 Jun 25 05:30	4°☾19'08		minimum elong	2544 Aug 01 21:45	10°♈28'56	0°35'41
max. Earth dist.	2536 Jun 24 15:36	4°☾17'05	20.10797 AU	max. Earth dist.	2544 Aug 01 00:26	10°♈25'40	19.58182 AU
retrograde	2536 Oct 13 21:08	8°☾34'16		retrograde	2544 Nov 19 17:02	14°♈51'01	
opposition	2536 Dec 28 01:26	6°☾32'15	0°16'37	opposition	2545 Feb 01 14:53	12°♈48'07	0°40'52
min. Earth dist.	2536 Dec 28 10:09	6°☾31'19	18.07200 AU	min. Earth dist.	2545 Feb 02 08:55	12°♈46'08	17.55608 AU
direct	2537 Mar 12 17:53	4°☾30'30		direct	2545 Apr 17 16:57	10°♈43'14	
					2545 Aug 04 17:46	15°♈	
conjunction	2537 Jun 29 22:38	8°☾43'32	0°16'35	max. Earth dist.	2545 Aug 06 03:08	15°♈05'09	19.53097 AU
minimum elong	2537 Jun 29 22:38	8°☾43'32	0°16'35				
max. Earth dist.	2537 Jun 29 11:32	8°☾41'53	20.03627 AU	conjunction	2545 Aug 07 00:33	15°♈08'27	0°37'41
retrograde	2537 Oct 18 15:11	13°☾00'05		minimum elong	2545 Aug 07 00:33	15°♈08'27	0°37'41
opposition	2538 Jan 01 15:43	10°☾57'54	0°20'09	retrograde	2545 Nov 24 16:26	19°♈31'09	
min. Earth dist.	2538 Jan 02 02:03	10°☾56'47	18.00025 AU	opposition	2546 Feb 06 10:53	17°♈28'16	0°42'59
direct	2538 Mar 17 09:00	8°☾55'43		min. Earth dist.	2546 Feb 07 04:54	17°♈26'18	17.50719 AU
				direct	2546 Apr 22 15:35	15°♈23'10	
conjunction	2538 Jul 04 20:15	13°☾10'18	0°19'43	max. Earth dist.	2546 Aug 11 04:59	19°♈46'09	19.48396 AU
minimum elong	2538 Jul 04 20:15	13°☾10'18	0°19'43				
max. Earth dist.	2538 Jul 04 06:13	13°☾08'13	19.96476 AU	conjunction	2546 Aug 12 03:54	19°♈49'42	0°39'27
retrograde	2538 Oct 23 10:10	17°☾27'43		minimum elong	2546 Aug 12 03:54	19°♈49'42	0°39'28
opposition	2539 Jan 06 06:31	15°☾25'22	0°23'36	retrograde	2546 Nov 29 14:54	24°♈12'58	
min. Earth dist.	2539 Jan 06 18:24	15°☾24'05	17.92918 AU	opposition	2547 Feb 11 07:46	22°♈10'07	0°44'50
direct	2539 Mar 22 01:18	13°☾22'42		min. Earth dist.	2547 Feb 12 03:32	22°♈07'57	17.46224 AU
				direct	2547 Apr 27 13:58	20°♈04'47	
conjunction	2539 Jul 09 18:47	17°☾38'53	0°22'45	max. Earth dist.	2547 Aug 16 08:25	24°♈28'55	19.44088 AU
minimum elong	2539 Jul 09 18:47	17°☾38'53	0°22'46				
max. Earth dist.	2539 Jul 09 04:16	17°☾36'43	19.89418 AU	conjunction	2547 Aug 17 07:48	24°♈32'33	0°40'58
retrograde	2539 Oct 28 05:47	21°☾57'08		minimum elong	2547 Aug 17 07:48	24°♈32'33	0°40'58
opposition	2540 Jan 10 22:08	19°☾54'38	0°26'55	retrograde	2547 Dec 04 15:10	28°♈56'19	
min. Earth dist.	2540 Jan 11 11:05	19°☾53'14	17.85941 AU	opposition	2548 Feb 16 05:20	26°♈53'28	0°46'23
direct	2540 Mar 25 18:02	17°☾51'32		min. Earth dist.	2548 Feb 17 00:49	26°♈51'20	17.42105 AU
				direct	2548 May 01 15:03	24°♈47'55	
conjunction	2540 Jul 13 17:43	22°☾09'16	0°25'40	max. Earth dist.	2548 Aug 20 11:45	29°♈13'00	19.40148 AU
minimum elong	2540 Jul 13 17:43	22°☾09'16	0°25'39				
max. Earth dist.	2540 Jul 13 00:39	22°☾06'41	19.82541 AU	conjunction	2548 Aug 21 11:59	29°♈16'46	0°42'13
retrograde	2540 Nov 01 01:58	26°☾28'21		minimum elong	2548 Aug 21 11:59	29°♈16'46	0°42'13
opposition	2541 Jan 14 14:26	24°☾25'42	0°30'05		2548 Sep 02 02:38	0°♈	



retrograde	2548 Dec 08 14:12	3° $\mathring{M}$ 40'56		minimum elong	2556 Sep 29 23:34	7° $\mathring{A}$ 33'59	0°41'25
opposition	2549 Feb 20 03:42	1° $\mathring{M}$ 38'07	0°47'38	max. Earth dist.	2556 Sep 29 01:55	7° $\mathring{A}$ 30'34	19.26119 AU
min. Earth dist.	2549 Feb 21 00:50	1° $\mathring{M}$ 35'48	17.38366 AU	retrograde	2557 Jan 15 19:31	11° $\mathring{A}$ 58'06	
	2549 Apr 04 00:03	30° $\mathring{R}$ $\mathring{Q}$		opposition	2557 Mar 30 06:43	9° $\mathring{A}$ 55'27	0°45'27
direct	2549 May 06 15:12	29° $\mathring{Q}$ 32'19		min. Earth dist.	2557 Mar 31 01:34	9° $\mathring{A}$ 53'24	17.26596 AU
	2549 Jun 07 22:16	0° $\mathring{M}$		direct	2557 Jun 14 15:31	7° $\mathring{A}$ 48'48	
				max. Earth dist.	2557 Oct 04 05:19	12° $\mathring{A}$ 18'01	19.27173 AU
conjunction	2549 Aug 26 16:36	4° $\mathring{M}$ 02'09	0°43'11	conjunction	2557 Oct 05 02:49	12° $\mathring{A}$ 21'24	0°39'58
minimum elong	2549 Aug 26 16:36	4° $\mathring{M}$ 02'09	0°43'11	minimum elong	2557 Oct 05 02:49	12° $\mathring{A}$ 21'24	0°39'58
max. Earth dist.	2549 Aug 25 15:33	3° $\mathring{M}$ 58'15	19.36607 AU	retrograde	2558 Jan 20 19:08	16° $\mathring{A}$ 45'12	
retrograde	2549 Dec 13 15:28	8° $\mathring{M}$ 26'37		opposition	2558 Apr 04 08:23	14° $\mathring{A}$ 42'43	0°43'41
opposition	2550 Feb 25 02:25	6° $\mathring{M}$ 23'47	0°48'33	min. Earth dist.	2558 Apr 05 02:14	14° $\mathring{A}$ 40'46	17.27989 AU
min. Earth dist.	2550 Feb 25 23:05	6° $\mathring{M}$ 21'31	17.35027 AU	direct	2558 Jun 19 19:02	12° $\mathring{A}$ 36'12	
direct	2550 May 11 18:08	4° $\mathring{M}$ 17'47		max. Earth dist.	2558 Oct 09 10:31	17° $\mathring{A}$ 05'31	19.28898 AU
conjunction	2550 Aug 31 21:28	8° $\mathring{M}$ 48'28	0°43'51	conjunction	2558 Oct 10 05:45	17° $\mathring{A}$ 08'34	0°38'15
minimum elong	2550 Aug 31 21:28	8° $\mathring{M}$ 48'28	0°43'50	minimum elong	2558 Oct 10 05:45	17° $\mathring{A}$ 08'34	0°38'15
max. Earth dist.	2550 Aug 30 20:24	8° $\mathring{M}$ 44'33	19.33474 AU	retrograde	2559 Jan 25 19:47	21° $\mathring{A}$ 31'57	
retrograde	2550 Dec 18 15:03	13° $\mathring{M}$ 13'07		opposition	2559 Apr 09 10:19	19° $\mathring{A}$ 29'39	0°41'37
opposition	2551 Mar 02 01:59	11° $\mathring{M}$ 10'18	0°49'08	min. Earth dist.	2559 Apr 10 02:51	19° $\mathring{A}$ 27'51	17.30011 AU
min. Earth dist.	2551 Mar 02 23:55	11° $\mathring{M}$ 07'54	17.32125 AU	direct	2559 Jun 25 00:13	17° $\mathring{A}$ 23'21	
direct	2551 May 16 19:11	9° $\mathring{M}$ 04'05		conjunction	2559 Oct 15 07:55	21° $\mathring{A}$ 55'18	0°36'16
max. Earth dist.	2551 Sep 05 00:17	13° $\mathring{M}$ 31'25	19.30814 AU	minimum elong	2559 Oct 15 07:55	21° $\mathring{A}$ 55'18	0°36'17
conjunction	2551 Sep 06 02:05	13° $\mathring{M}$ 35'28	0°44'12	max. Earth dist.	2559 Oct 14 13:18	21° $\mathring{A}$ 52'21	19.31223 AU
minimum elong	2551 Sep 06 02:05	13° $\mathring{M}$ 35'28	0°44'13	retrograde	2560 Jan 30 18:32	26° $\mathring{A}$ 18'15	
retrograde	2551 Dec 23 16:49	18° $\mathring{M}$ 00'15		opposition	2560 Apr 13 12:19	24° $\mathring{A}$ 16'08	0°39'16
opposition	2552 Mar 06 01:50	15° $\mathring{M}$ 57'24	0°49'23	min. Earth dist.	2560 Apr 14 04:12	24° $\mathring{A}$ 14'25	17.32622 AU
min. Earth dist.	2552 Mar 06 22:58	15° $\mathring{M}$ 55'05	17.29714 AU	direct	2560 Jun 29 03:42	22° $\mathring{A}$ 10'03	
direct	2552 May 20 22:44	13° $\mathring{M}$ 51'00		conjunction	2560 Oct 19 09:45	26° $\mathring{A}$ 41'28	0°34'03
max. Earth dist.	2552 Sep 09 06:06	18° $\mathring{M}$ 19'03	19.28658 AU	minimum elong	2560 Oct 19 09:45	26° $\mathring{A}$ 41'28	0°34'02
conjunction	2552 Sep 10 06:56	18° $\mathring{M}$ 22'57	0°44'16	max. Earth dist.	2560 Oct 18 17:02	26° $\mathring{A}$ 38'50	19.34102 AU
minimum elong	2552 Sep 10 06:56	18° $\mathring{M}$ 22'57	0°44'16		2560 Dec 17 08:57	0° $\mathring{M}$	
retrograde	2552 Dec 27 16:50	22° $\mathring{M}$ 47'45		retrograde	2561 Feb 03 18:43	1° $\mathring{M}$ 03'52	
opposition	2553 Mar 11 02:07	20° $\mathring{M}$ 44'54	0°49'17		2561 Mar 26 04:50	30° $\mathring{R}$ $\mathring{A}$	
min. Earth dist.	2553 Mar 12 00:01	20° $\mathring{M}$ 42'30	17.27832 AU	opposition	2561 Apr 18 14:10	29° $\mathring{A}$ 01'58	0°36'39
direct	2553 May 26 00:43	18° $\mathring{M}$ 38'20		min. Earth dist.	2561 Apr 19 04:25	29° $\mathring{A}$ 00'26	17.35734 AU
max. Earth dist.	2553 Sep 14 10:02	23° $\mathring{M}$ 06'41	19.27068 AU	direct	2561 Jul 04 09:08	26° $\mathring{A}$ 56'08	
conjunction	2553 Sep 15 11:31	23° $\mathring{M}$ 10'42	0°44'00		2561 Oct 01 02:54	0° $\mathring{M}$	
minimum elong	2553 Sep 15 11:31	23° $\mathring{M}$ 10'42	0°44'00	conjunction	2561 Oct 24 10:57	1° $\mathring{M}$ 26'51	0°31'36
retrograde	2554 Jan 01 18:13	27° $\mathring{M}$ 35'26		minimum elong	2561 Oct 24 10:57	1° $\mathring{M}$ 26'51	0°31'36
opposition	2554 Mar 16 02:46	25° $\mathring{M}$ 32'36	0°48'49	max. Earth dist.	2561 Oct 23 19:12	1° $\mathring{M}$ 24'22	19.37453 AU
min. Earth dist.	2554 Mar 16 23:41	25° $\mathring{M}$ 30'18	17.26540 AU	retrograde	2562 Feb 08 16:54	5° $\mathring{M}$ 48'39	
direct	2554 May 31 04:31	23° $\mathring{M}$ 25'55		opposition	2562 Apr 23 16:15	3° $\mathring{M}$ 46'56	0°33'48
conjunction	2554 Sep 20 15:55	27° $\mathring{M}$ 58'33	0°43'26	min. Earth dist.	2562 Apr 24 06:03	3° $\mathring{M}$ 45'27	17.39314 AU
minimum elong	2554 Sep 20 15:55	27° $\mathring{M}$ 58'33	0°43'27	direct	2562 Jul 09 12:01	1° $\mathring{M}$ 41'21	
max. Earth dist.	2554 Sep 19 16:14	27° $\mathring{M}$ 54'49	19.26079 AU	conjunction	2562 Oct 29 11:19	6° $\mathring{M}$ 11'15	0°28'57
	2554 Oct 23 21:16	0° $\mathring{A}$		minimum elong	2562 Oct 29 11:19	6° $\mathring{M}$ 11'15	0°28'56
retrograde	2555 Jan 06 18:23	2° $\mathring{A}$ 23'08		max. Earth dist.	2562 Oct 28 21:07	6° $\mathring{M}$ 09'01	19.41248 AU
opposition	2555 Mar 21 03:53	0° $\mathring{A}$ 20'19	0°48'02	retrograde	2563 Feb 13 16:41	10° $\mathring{M}$ 32'21	
min. Earth dist.	2555 Mar 22 00:44	0° $\mathring{A}$ 18'02	17.25871 AU	opposition	2563 Apr 28 18:04	8° $\mathring{M}$ 30'50	0°30'43
	2555 Mar 28 22:14	30° $\mathring{R}$ $\mathring{M}$		min. Earth dist.	2563 Apr 29 05:43	8° $\mathring{M}$ 29'35	17.43297 AU
direct	2555 Jun 05 07:41	28° $\mathring{M}$ 13'35		direct	2563 Jul 14 16:23	6° $\mathring{M}$ 25'31	
	2555 Aug 09 15:42	0° $\mathring{A}$		conjunction	2563 Nov 03 11:00	10° $\mathring{M}$ 54'27	0°26'06
conjunction	2555 Sep 25 19:51	2° $\mathring{A}$ 46'20	0°42'35	minimum elong	2563 Nov 03 11:00	10° $\mathring{M}$ 54'27	0°26'06
minimum elong	2555 Sep 25 19:51	2° $\mathring{A}$ 46'20	0°42'34	max. Earth dist.	2563 Nov 02 22:21	10° $\mathring{M}$ 52'28	19.45424 AU
max. Earth dist.	2555 Sep 24 19:57	2° $\mathring{A}$ 42'34	19.25751 AU		2564 Jan 26 14:04	15° $\mathring{M}$	
retrograde	2556 Jan 11 18:59	7° $\mathring{A}$ 10'44		retrograde	2564 Feb 18 14:23	15° $\mathring{M}$ 14'48	
opposition	2556 Mar 25 05:07	5° $\mathring{A}$ 07'58	0°46'54		2564 Mar 13 01:57	15° $\mathring{R}$ $\mathring{M}$	
min. Earth dist.	2556 Mar 26 00:46	5° $\mathring{A}$ 05'49	17.25894 AU	opposition	2564 May 02 19:38	13° $\mathring{M}$ 13'26	0°27'26
direct	2556 Jun 09 11:15	3° $\mathring{A}$ 01'13		min. Earth dist.	2564 May 03 06:57	13° $\mathring{M}$ 12'14	17.47660 AU
conjunction	2556 Sep 29 23:34	7° $\mathring{A}$ 33'59	0°41'25	direct	2564 Jul 18 18:18	11° $\mathring{M}$ 08'23	

	2564 Oct 28 18:33	15° $\mathbb{M}$	direct	2571 Aug 22 01:22	13° $\mathbb{A}$ 19'24	
			desc. node	2571 Oct 18 21:45	14° $\mathbb{A}$ 42'26	
conjunction	2564 Nov 07 09:49	15° $\mathbb{M}$ 36'14 0°23'05				
minimum elong	2564 Nov 07 09:49	15° $\mathbb{M}$ 36'14 0°23'06	conjunction	2571 Dec 09 22:09	17° $\mathbb{A}$ 37'24 0°00'-29	
max. Earth dist.	2564 Nov 06 22:19	15° $\mathbb{M}$ 34'26 19.49971 AU	minimum elong	2571 Dec 09 22:10	17° $\mathbb{A}$ 37'24 0°00'30	
retrograde	2565 Feb 22 13:12	19° $\mathbb{M}$ 55'47	behind sun begin	2571 Dec 09 15:37	17° $\mathbb{A}$ 36'25	
opposition	2565 May 07 20:49	17° $\mathbb{M}$ 54'34 0°24'00	behind sun end	2571 Dec 10 04:43	17° $\mathbb{A}$ 38'23	
min. Earth dist.	2565 May 08 05:44	17° $\mathbb{M}$ 53'37 17.52361 AU	max. Earth dist.	2571 Dec 10 01:01	17° $\mathbb{A}$ 37'47 19.91159 AU	
direct	2565 Jul 23 21:35	15° $\mathbb{M}$ 49'46	retrograde	2572 Mar 26 00:50	21° $\mathbb{A}$ 50'24	
			opposition	2572 Jun 09 15:27	19° $\mathbb{A}$ 50'10 0°-2'-25	
conjunction	2565 Nov 12 07:44	20° $\mathbb{M}$ 16'26 0°19'56	min. Earth dist.	2572 Jun 09 12:21	19° $\mathbb{A}$ 50'29 17.94640 AU	
minimum elong	2565 Nov 12 07:44	20° $\mathbb{M}$ 16'26 0°19'56	direct	2572 Aug 25 22:47	17° $\mathbb{A}$ 47'43	
max. Earth dist.	2565 Nov 11 22:22	20° $\mathbb{M}$ 14'58 19.54837 AU				
retrograde	2566 Feb 27 09:32	24° $\mathbb{M}$ 35'06	conjunction	2572 Dec 13 13:15	22° $\mathbb{A}$ 04'11 0°-3'-58	
opposition	2566 May 12 21:47	22° $\mathbb{M}$ 34'00 0°20'25	minimum elong	2572 Dec 13 13:15	22° $\mathbb{A}$ 04'11 0°03'59	
min. Earth dist.	2566 May 13 06:12	22° $\mathbb{M}$ 33'07 17.57392 AU	behind sun begin	2572 Dec 13 06:46	22° $\mathbb{A}$ 03'13	
direct	2566 Jul 28 22:56	20° $\mathbb{M}$ 29'29	behind sun end	2572 Dec 13 19:45	22° $\mathbb{A}$ 05'09	
			max. Earth dist.	2572 Dec 13 16:52	22° $\mathbb{A}$ 04'42 19.98215 AU	
conjunction	2566 Nov 17 04:36	24° $\mathbb{M}$ 54'50 0°16'41	retrograde	2573 Mar 30 18:25	26° $\mathbb{A}$ 16'17	
minimum elong	2566 Nov 17 04:35	24° $\mathbb{M}$ 54'50 0°16'41	opposition	2573 Jun 14 12:19	24° $\mathbb{A}$ 16'14 0°-6'-13	
max. Earth dist.	2566 Nov 16 20:20	24° $\mathbb{M}$ 53'33 19.60047 AU	min. Earth dist.	2573 Jun 14 06:56	24° $\mathbb{A}$ 16'47 18.01769 AU	
retrograde	2567 Mar 04 07:02	29° $\mathbb{M}$ 12'36	direct	2573 Aug 30 19:20	22° $\mathbb{A}$ 14'14	
opposition	2567 May 17 22:06	27° $\mathbb{M}$ 11'36 0°16'43				
min. Earth dist.	2567 May 18 03:48	27° $\mathbb{M}$ 11'00 17.62764 AU	conjunction	2573 Dec 18 03:33	26° $\mathbb{A}$ 29'10 0°-7'-21	
direct	2567 Aug 03 01:13	25° $\mathbb{M}$ 07'20	minimum elong	2573 Dec 18 03:33	26° $\mathbb{A}$ 29'10 0°07'22	
			behind sun begin	2573 Dec 17 21:32	26° $\mathbb{A}$ 28'16	
conjunction	2567 Nov 22 00:27	29° $\mathbb{M}$ 31'19 0°13'20	behind sun end	2573 Dec 18 09:34	26° $\mathbb{A}$ 30'04	
minimum elong	2567 Nov 22 00:27	29° $\mathbb{M}$ 31'19 0°13'20	max. Earth dist.	2573 Dec 18 10:06	26° $\mathbb{A}$ 30'09 20.05387 AU	
behind sun begin	2567 Nov 21 20:35	29° $\mathbb{M}$ 30'43		2574 Feb 24 02:28	0° $\mathbb{B}$	
behind sun end	2567 Nov 22 04:19	29° $\mathbb{M}$ 31'54	retrograde	2574 Apr 04 09:28	0° $\mathbb{B}$ 40'20	
max. Earth dist.	2567 Nov 21 18:57	29° $\mathbb{M}$ 30'28 19.65588 AU		2574 May 15 04:00	30° $\mathbb{R}$ $\mathbb{A}$	
	2567 Nov 29 16:36	0° $\mathbb{A}$	opposition	2574 Jun 19 08:42	28° $\mathbb{A}$ 40'31 0°-9'-57	
retrograde	2568 Mar 08 01:32	3° $\mathbb{A}$ 48'07	min. Earth dist.	2574 Jun 19 02:02	28° $\mathbb{A}$ 41'12 18.08966 AU	
opposition	2568 May 21 22:01	1° $\mathbb{A}$ 47'14 0°12'57	direct	2574 Sep 04 15:25	26° $\mathbb{A}$ 38'58	
min. Earth dist.	2568 May 22 02:55	1° $\mathbb{A}$ 46'43 17.68476 AU		2574 Dec 08 07:14	0° $\mathbb{B}$	
	2568 Jul 12 07:26	30° $\mathbb{R}$ $\mathbb{M}$				
direct	2568 Aug 07 02:06	29° $\mathbb{M}$ 43'16	conjunction	2574 Dec 22 16:57	0° $\mathbb{B}$ 52'20 0°-10'-40	
	2568 Sep 01 12:35	0° $\mathbb{A}$	minimum elong	2574 Dec 22 16:57	0° $\mathbb{B}$ 52'20 0°10'40	
			behind sun begin	2574 Dec 22 11:50	0° $\mathbb{B}$ 51'35	
conjunction	2568 Nov 25 19:15	4° $\mathbb{A}$ 05'47 0°09'56	behind sun end	2574 Dec 22 22:03	0° $\mathbb{B}$ 53'06	
minimum elong	2568 Nov 25 19:15	4° $\mathbb{A}$ 05'47 0°09'55	max. Earth dist.	2574 Dec 23 00:06	0° $\mathbb{B}$ 53'24 20.12599 AU	
behind sun begin	2568 Nov 25 13:52	4° $\mathbb{A}$ 04'58	retrograde	2575 Apr 09 01:34	5° $\mathbb{B}$ 02'38	
behind sun end	2568 Nov 26 00:38	4° $\mathbb{A}$ 06'36	opposition	2575 Jun 24 04:16	3° $\mathbb{B}$ 02'59 0°-13'-36	
max. Earth dist.	2568 Nov 25 14:50	4° $\mathbb{A}$ 05'07 19.71482 AU	min. Earth dist.	2575 Jun 23 19:51	3° $\mathbb{B}$ 03'51 18.16180 AU	
retrograde	2569 Mar 12 21:12	8° $\mathbb{A}$ 21'39	direct	2575 Sep 09 09:40	1° $\mathbb{B}$ 01'52	
opposition	2569 May 26 21:09	6° $\mathbb{A}$ 20'52 0°09'07				
min. Earth dist.	2569 May 26 23:09	6° $\mathbb{A}$ 20'39 17.74544 AU	conjunction	2575 Dec 27 05:42	5° $\mathbb{B}$ 13'43 0°-13'-54	
direct	2569 Aug 12 03:06	4° $\mathbb{A}$ 17'13	minimum elong	2575 Dec 27 05:42	5° $\mathbb{B}$ 13'43 0°13'56	
			behind sun begin	2575 Dec 27 02:12	5° $\mathbb{B}$ 13'12	
conjunction	2569 Nov 30 13:16	8° $\mathbb{A}$ 38'16 0°06'30	behind sun end	2575 Dec 27 09:11	5° $\mathbb{B}$ 14'14	
minimum elong	2569 Nov 30 13:16	8° $\mathbb{A}$ 38'16 0°06'30	max. Earth dist.	2575 Dec 27 15:23	5° $\mathbb{B}$ 15'10 20.19774 AU	
behind sun begin	2569 Nov 30 07:04	8° $\mathbb{A}$ 37'19	retrograde	2576 Apr 12 15:53	9° $\mathbb{B}$ 23'07	
behind sun end	2569 Nov 30 19:28	8° $\mathbb{A}$ 39'12	opposition	2576 Jun 27 23:13	7° $\mathbb{B}$ 23'40 0°-17'-9	
max. Earth dist.	2569 Nov 30 11:57	8° $\mathbb{A}$ 38'05 19.77725 AU	min. Earth dist.	2576 Jun 27 13:33	7° $\mathbb{B}$ 24'39 18.23299 AU	
retrograde	2570 Mar 17 14:22	12° $\mathbb{A}$ 53'09	direct	2576 Sep 13 04:30	5° $\mathbb{B}$ 22'58	
opposition	2570 May 31 20:00	10° $\mathbb{A}$ 52'32 0°05'16				
min. Earth dist.	2570 May 31 20:48	10° $\mathbb{A}$ 52'26 17.80955 AU	conjunction	2576 Dec 30 17:30	9° $\mathbb{B}$ 33'17 0°-17'-3	
direct	2570 Aug 17 02:27	8° $\mathbb{A}$ 49'15	minimum elong	2576 Dec 30 17:30	9° $\mathbb{B}$ 33'17 0°17'03	
			max. Earth dist.	2576 Dec 31 03:31	9° $\mathbb{B}$ 34'47 20.26824 AU	
conjunction	2570 Dec 05 06:02	13° $\mathbb{A}$ 08'46 0°03'03	retrograde	2577 Apr 17 06:20	13° $\mathbb{B}$ 41'51	
minimum elong	2570 Dec 05 06:01	13° $\mathbb{A}$ 08'46 0°03'02	opposition	2577 Jul 02 17:29	11° $\mathbb{B}$ 42'32 0°-20'-34	
behind sun begin	2570 Dec 04 23:28	13° $\mathbb{A}$ 07'47	min. Earth dist.	2577 Jul 02 06:33	11° $\mathbb{B}$ 43'39 18.30280 AU	
behind sun end	2570 Dec 05 12:35	13° $\mathbb{A}$ 09'45	direct	2577 Sep 17 20:33	9° $\mathbb{B}$ 42'12	
max. Earth dist.	2570 Dec 05 05:46	13° $\mathbb{A}$ 08'45 19.84305 AU				
retrograde	2571 Mar 22 08:57	17° $\mathbb{A}$ 22'44	conjunction	2578 Jan 04 04:46	13° $\mathbb{B}$ 51'02 0°-20'-5	
opposition	2571 Jun 05 18:04	15° $\mathbb{A}$ 22'16 0°01'24	minimum elong	2578 Jan 04 04:46	13° $\mathbb{B}$ 51'02 0°20'06	
min. Earth dist.	2571 Jun 05 16:07	15° $\mathbb{A}$ 22'28 17.87681 AU	max. Earth dist.	2578 Jan 04 17:01	13° $\mathbb{B}$ 52'53 20.33704 AU	

retrograde	2578 Apr 21 19:44	17°♄58'45		conjunction	2586 Feb 05 20:19	17°♄09'27	0°-38'-35
opposition	2578 Jul 07 11:04	15°♄59'34	0°-23'-52	minimum elong	2586 Feb 05 20:18	17°♄09'27	0°38'36
min. Earth dist.	2578 Jul 06 22:45	16°♄00'49	18.37049 AU	max. Earth dist.	2586 Feb 06 17:54	17°♄12'36	20.81122 AU
direct	2578 Sep 22 14:06	13°♄59'36		retrograde	2586 May 25 13:30	21°♄11'47	
				min. Earth dist.	2586 Aug 10 06:51	19°♄15'13	18.83642 AU
conjunction	2579 Jan 08 15:00	18°♄06'57	0°-22'-59	opposition	2586 Aug 11 04:27	19°♄13'03	0°-43'-32
minimum elong	2579 Jan 08 15:00	18°♄06'56	0°22'59	direct	2586 Oct 26 19:03	17°♄15'27	
max. Earth dist.	2579 Jan 09 03:31	18°♄08'49	20.40359 AU				
retrograde	2579 Apr 26 08:54	22°♄13'51		conjunction	2587 Feb 10 01:54	21°♄12'50	0°-40'-4
opposition	2579 Jul 12 03:54	20°♄14'45	0°-27'00	minimum elong	2587 Feb 10 01:54	21°♄12'50	0°40'05
min. Earth dist.	2579 Jul 11 14:43	20°♄16'05	18.43597 AU	max. Earth dist.	2587 Feb 10 23:38	21°♄16'00	20.86034 AU
direct	2579 Sep 27 04:24	18°♄15'05		retrograde	2587 May 29 21:49	25°♄14'46	
				opposition	2587 Aug 15 15:48	23°♄16'05	0°-45'-2
conjunction	2580 Jan 13 00:42	22°♄20'59	0°-25'-44	min. Earth dist.	2587 Aug 14 18:29	23°♄18'13	18.88396 AU
minimum elong	2580 Jan 13 00:42	22°♄20'59	0°25'45	direct	2587 Oct 31 03:37	21°♄18'47	
max. Earth dist.	2580 Jan 13 15:17	22°♄23'09	20.46783 AU				
retrograde	2580 Apr 29 21:01	26°♄27'04		conjunction	2588 Feb 14 07:21	25°♄15'14	0°-41'-20
opposition	2580 Jul 15 19:42	24°♄28'01	0°-29'-57	minimum elong	2588 Feb 14 07:21	25°♄15'14	0°41'21
min. Earth dist.	2580 Jul 15 05:02	24°♄29'30	18.49899 AU	max. Earth dist.	2588 Feb 15 06:19	25°♄18'35	20.90601 AU
direct	2580 Sep 30 20:15	22°♄28'40		retrograde	2588 Jun 02 07:53	29°♄16'47	
				min. Earth dist.	2588 Aug 18 03:50	27°♄20'26	18.92761 AU
conjunction	2581 Jan 16 09:28	26°♄33'08	0°-28'-20	opposition	2588 Aug 19 02:24	27°♄18'11	0°-46'-19
minimum elong	2581 Jan 16 09:27	26°♄33'08	0°28'21	direct	2588 Nov 03 13:08	25°♄21'08	
max. Earth dist.	2581 Jan 17 00:26	26°♄35'22	20.52976 AU				
	2581 Mar 26 05:00	0°♄		conjunction	2589 Feb 17 12:30	29°♄16'46	0°-42'-24
retrograde	2581 May 04 09:03	0°♄38'29		minimum elong	2589 Feb 17 12:30	29°♄16'46	0°42'25
	2581 Jun 13 21:07	30°♄		max. Earth dist.	2589 Feb 18 11:17	29°♄20'04	20.94752 AU
opposition	2581 Jul 20 11:01	28°♄39'27	0°-32'-44		2589 Mar 02 00:08	0°♄	
min. Earth dist.	2581 Jul 19 19:35	28°♄41'01	18.56006 AU	retrograde	2589 Jun 06 15:20	3°♄18'00	
direct	2581 Oct 05 09:07	26°♄40'23		opposition	2589 Aug 23 12:51	1°♄19'26	0°-47'-22
	2582 Jan 08 11:02	0°♄		min. Earth dist.	2589 Aug 22 14:59	1°♄21'37	18.96699 AU
					2589 Sep 29 00:09	30°♄	
conjunction	2582 Jan 20 17:32	0°♄43'29	0°-30'-45	direct	2589 Nov 07 20:08	29°♄22'37	
minimum elong	2582 Jan 20 17:32	0°♄43'29	0°30'46		2589 Dec 16 09:57	0°♄	
max. Earth dist.	2582 Jan 21 10:41	0°♄46'01	20.58982 AU				
retrograde	2582 May 08 20:07	4°♄48'06		conjunction	2590 Feb 21 17:32	3°♄17'29	0°-43'-15
min. Earth dist.	2582 Jul 24 08:11	2°♄50'52	18.61921 AU	minimum elong	2590 Feb 21 17:32	3°♄17'29	0°43'16
opposition	2582 Jul 25 01:29	2°♄49'07	0°-35'-19	max. Earth dist.	2590 Feb 22 17:09	3°♄20'54	20.98447 AU
direct	2582 Oct 09 23:15	0°♄50'20		retrograde	2590 Jun 11 00:54	7°♄18'27	
				opposition	2590 Aug 27 22:40	5°♄19'54	0°-48'-11
conjunction	2583 Jan 25 00:57	4°♄52'08	0°-32'-59	min. Earth dist.	2590 Aug 26 23:49	5°♄22'11	19.00136 AU
minimum elong	2583 Jan 25 00:57	4°♄52'07	0°33'01	direct	2590 Nov 12 05:03	3°♄23'16	
max. Earth dist.	2583 Jan 25 18:35	4°♄54'44	20.64807 AU				
retrograde	2583 May 13 07:08	8°♄56'06		conjunction	2591 Feb 25 22:27	7°♄17'27	0°-43'-54
opposition	2583 Jul 29 15:10	6°♄57'09	0°-37'-41	minimum elong	2591 Feb 25 22:27	7°♄17'27	0°43'54
min. Earth dist.	2583 Jul 28 21:18	6°♄58'57	18.67676 AU	max. Earth dist.	2591 Feb 26 21:26	7°♄20'46	21.01612 AU
direct	2583 Oct 14 10:21	4°♄58'39		retrograde	2591 Jun 15 07:55	11°♄18'12	
				min. Earth dist.	2591 Aug 31 10:20	9°♄21'47	19.03037 AU
conjunction	2584 Jan 29 07:58	8°♄59'14	0°-35'-3	opposition	2591 Sep 01 08:02	9°♄19'37	0°-48'-46
minimum elong	2584 Jan 29 07:57	8°♄59'14	0°35'03	direct	2591 Nov 16 10:56	7°♄23'06	
max. Earth dist.	2584 Jan 30 03:29	9°♄02'06	20.70465 AU				
retrograde	2584 May 16 17:29	13°♄02'35		conjunction	2592 Mar 01 03:21	11°♄16'41	0°-44'-19
min. Earth dist.	2584 Aug 01 08:26	11°♄05'41	18.73231 AU	minimum elong	2592 Mar 01 03:21	11°♄16'41	0°44'20
opposition	2584 Aug 02 04:09	11°♄03'43	0°-39'-51	max. Earth dist.	2592 Mar 02 02:43	11°♄20'03	21.04236 AU
direct	2584 Oct 17 22:34	9°♄05'31		retrograde	2592 Jun 18 16:39	15°♄17'14	
				opposition	2592 Sep 04 16:56	13°♄18'36	0°-49'-6
conjunction	2585 Feb 01 14:14	13°♄04'57	0°-36'-55	min. Earth dist.	2592 Sep 03 18:24	13°♄20'51	19.05377 AU
minimum elong	2585 Feb 01 14:14	13°♄04'57	0°36'57	direct	2592 Nov 19 19:07	11°♄22'11	
max. Earth dist.	2585 Feb 02 10:09	13°♄07'52	20.75908 AU				
	2585 Mar 07 14:18	15°♄		conjunction	2593 Mar 05 07:48	15°♄15'13	0°-44'-31
retrograde	2585 May 21 03:10	17°♄07'47		minimum elong	2593 Mar 05 07:48	15°♄15'13	0°44'32
opposition	2585 Aug 06 16:40	15°♄08'58	0°-41'-48	max. Earth dist.	2593 Mar 06 06:30	15°♄18'28	21.06303 AU
min. Earth dist.	2585 Aug 05 20:42	15°♄10'58	18.78571 AU	retrograde	2593 Jun 22 23:29	19°♄15'38	
	2585 Aug 10 10:18	15°♄		min. Earth dist.	2593 Sep 08 04:13	17°♄19'02	19.07190 AU
direct	2585 Oct 22 08:31	13°♄11'05		opposition	2593 Sep 09 01:35	17°♄16'54	0°-49'-12
	2585 Dec 28 22:40	15°♄		direct	2593 Nov 24 00:29	15°♄20'33	

conjunction	2594 Mar 09 12:24	19° <del>✕</del> 13'06	0°-44'-30
minimum elong	2594 Mar 09 12:24	19° <del>✕</del> 13'06	0°44'32
max. Earth dist.	2594 Mar 10 11:34	19° <del>✕</del> 16'25	21.07873 AU
retrograde	2594 Jun 27 07:33	23° <del>✕</del> 13'26	
min. Earth dist.	2594 Sep 12 11:19	21° <del>✕</del> 16'48	19.08520 AU
opposition	2594 Sep 13 09:31	21° <del>✕</del> 14'35	0°-49'-4
direct	2594 Nov 28 07:41	19° <del>✕</del> 18'15	
conjunction	2595 Mar 13 16:50	23° <del>✕</del> 10'26	0°-44'-17
minimum elong	2595 Mar 13 16:50	23° <del>✕</del> 10'26	0°44'18
max. Earth dist.	2595 Mar 14 15:20	23° <del>✕</del> 13'39	21.08974 AU
retrograde	2595 Jul 01 14:14	27° <del>✕</del> 10'45	
opposition	2595 Sep 17 17:16	25° <del>✕</del> 11'48	0°-48'-41
min. Earth dist.	2595 Sep 16 20:17	25° <del>✕</del> 13'54	19.09414 AU
direct	2595 Dec 02 12:09	23° <del>✕</del> 15'28	
conjunction	2596 Mar 16 21:20	27° <del>✕</del> 07'24	0°-43'-51
minimum elong	2596 Mar 16 21:20	27° <del>✕</del> 07'24	0°43'51
max. Earth dist.	2596 Mar 17 20:17	27° <del>✕</del> 10'40	21.09665 AU
	2596 May 11 23:12	0° <del>∩</del>	
retrograde	2596 Jul 04 21:59	1° <del>∩</del> 07'44	
	2596 Aug 29 22:10	30° <del>R</del> <del>✕</del>	
min. Earth dist.	2596 Sep 20 02:40	29° <del>✕</del> 10'53	19.09903 AU
opposition	2596 Sep 21 00:30	29° <del>✕</del> 08'42	0°-48'-5
direct	2596 Dec 05 18:32	27° <del>✕</del> 12'23	
	2597 Mar 02 03:40	0° <del>∩</del>	
conjunction	2597 Mar 21 01:53	1° <del>∩</del> 04'08	0°-43'-12
minimum elong	2597 Mar 21 01:53	1° <del>∩</del> 04'08	0°43'13
max. Earth dist.	2597 Mar 22 00:09	1° <del>∩</del> 07'19	21.09961 AU
retrograde	2597 Jul 09 04:38	5° <del>∩</del> 04'37	
min. Earth dist.	2597 Sep 24 11:09	3° <del>∩</del> 07'33	19.10018 AU
opposition	2597 Sep 25 07:44	3° <del>∩</del> 05'29	0°-47'-15
direct	2597 Dec 09 22:05	1° <del>∩</del> 09'11	
conjunction	2598 Mar 25 06:39	5° <del>∩</del> 00'53	0°-42'-21
minimum elong	2598 Mar 25 06:39	5° <del>∩</del> 00'53	0°42'21
max. Earth dist.	2598 Mar 26 05:13	5° <del>∩</del> 04'06	21.09894 AU
retrograde	2598 Jul 13 12:58	9° <del>∩</del> 01'32	
opposition	2598 Sep 29 14:34	7° <del>∩</del> 02'20	0°-46'-12
min. Earth dist.	2598 Sep 28 17:21	7° <del>∩</del> 04'28	19.09751 AU
direct	2598 Dec 14 03:56	5° <del>∩</del> 06'03	
conjunction	2599 Mar 29 11:40	8° <del>∩</del> 57'47	0°-41'-18
minimum elong	2599 Mar 29 11:40	8° <del>∩</del> 57'47	0°41'19
max. Earth dist.	2599 Mar 30 09:18	9° <del>∩</del> 00'52	21.09431 AU
retrograde	2599 Jul 17 19:37	12° <del>∩</del> 58'42	
opposition	2599 Oct 03 21:18	10° <del>∩</del> 59'27	0°-44'-56
min. Earth dist.	2599 Oct 03 01:41	11° <del>∩</del> 01'25	19.09096 AU
direct	2599 Dec 18 07:03	9° <del>∩</del> 03'10	
conjunction	2600 Apr 02 17:04	12° <del>∩</del> 55'02	0°-40'-3
minimum elong	2600 Apr 02 17:04	12° <del>∩</del> 55'02	0°40'04
max. Earth dist.	2600 Apr 03 14:41	12° <del>∩</del> 58'07	21.08585 AU
retrograde	2600 Jul 22 04:46	16° <del>∩</del> 56'16	
min. Earth dist.	2600 Oct 07 07:57	14° <del>∩</del> 58'59	19.08035 AU
opposition	2600 Oct 08 03:58	14° <del>∩</del> 56'58	0°-43'-28
direct	2600 Dec 22 12:24	13° <del>∩</del> 00'41	

conjunction	2600 Apr 02 17:04	12° $\Upsilon$ 55'02	0°-40'-3	direct	2608 Jan 19 23:31	11° $\text{♄}$ 01'48	
minimum elong	2600 Apr 02 17:04	12° $\Upsilon$ 55'02	0°40'04				
max. Earth dist.	2600 Apr 03 14:41	12° $\Upsilon$ 58'07	21.08585 AU	conjunction	2608 May 05 05:55	14° $\text{♄}$ 57'48	0°-23'-42
retrograde	2600 Jul 22 04:46	16° $\Upsilon$ 56'16		minimum elong	2608 May 05 05:55	14° $\text{♄}$ 57'48	0°23'43
min. Earth dist.	2600 Oct 07 07:57	14° $\Upsilon$ 58'59	19.08035 AU		2608 May 05 21:13	15° $\text{♄}$	
opposition	2600 Oct 08 03:58	14° $\Upsilon$ 56'58	0°-43'-28	max. Earth dist.	2608 May 05 17:21	14° $\text{♄}$ 59'26	20.84497 AU
direct	2600 Dec 22 12:24	13° $\Upsilon$ 00'41		retrograde	2608 Aug 24 09:05	19° $\text{♄}$ 03'08	
				opposition	2608 Nov 09 12:05	17° $\text{♄}$ 02'45	0°-24'-40
conjunction	2601 Apr 06 22:38	16° $\Upsilon$ 52'47	0°-38'-37	min. Earth dist.	2608 Nov 09 02:00	17° $\text{♄}$ 03'48	18.82017 AU
minimum elong	2601 Apr 06 22:38	16° $\Upsilon$ 52'47	0°38'39	direct	2609 Jan 23 07:11	15° $\text{♄}$ 05'05	
max. Earth dist.	2601 Apr 07 19:06	16° $\Upsilon$ 55'42	21.07311 AU				
retrograde	2601 Jul 26 12:01	20° $\Upsilon$ 54'24		conjunction	2609 May 09 15:59	19° $\text{♄}$ 01'58	0°-20'-58
opposition	2601 Oct 12 10:49	18° $\Upsilon$ 55'03	0°-41'-47	minimum elong	2609 May 09 16:00	19° $\text{♄}$ 01'58	0°20'59
min. Earth dist.	2601 Oct 11 16:41	18° $\Upsilon$ 56'53	19.06540 AU	max. Earth dist.	2609 May 10 01:51	19° $\text{♄}$ 03'23	20.79468 AU
direct	2601 Dec 26 15:57	16° $\Upsilon$ 58'45		retrograde	2609 Aug 28 18:24	23° $\text{♄}$ 08'00	
				opposition	2609 Nov 13 19:54	21° $\text{♄}$ 07'25	0°-21'-35
conjunction	2602 Apr 11 04:58	20° $\Upsilon$ 51'11	0°-37'00	min. Earth dist.	2609 Nov 13 12:00	21° $\text{♄}$ 08'14	18.76843 AU
minimum elong	2602 Apr 11 04:58	20° $\Upsilon$ 51'11	0°37'01	direct	2610 Jan 27 12:34	19° $\text{♄}$ 09'26	
max. Earth dist.	2602 Apr 12 00:58	20° $\Upsilon$ 54'02	21.05594 AU				
retrograde	2602 Jul 30 21:52	24° $\Upsilon$ 53'13		conjunction	2610 May 14 02:58	23° $\text{♄}$ 07'17	0°-18'-7
opposition	2602 Oct 16 17:22	22° $\Upsilon$ 53'49	0°-39'-53	minimum elong	2610 May 14 02:58	23° $\text{♄}$ 07'17	0°18'08
min. Earth dist.	2602 Oct 15 23:20	22° $\Upsilon$ 55'38	19.04573 AU	max. Earth dist.	2610 May 14 11:35	23° $\text{♄}$ 08'31	20.74172 AU
direct	2602 Dec 30 21:06	20° $\Upsilon$ 57'26		retrograde	2610 Sep 02 07:15	27° $\text{♄}$ 14'02	
				opposition	2610 Nov 18 03:43	25° $\text{♄}$ 13'16	0°-18'-23
conjunction	2603 Apr 15 11:44	24° $\Upsilon$ 50'18	0°-35'-12	min. Earth dist.	2610 Nov 17 20:15	25° $\text{♄}$ 14'03	18.71421 AU
minimum elong	2603 Apr 15 11:44	24° $\Upsilon$ 50'18	0°35'13	direct	2611 Jan 31 21:02	23° $\text{♄}$ 14'59	
max. Earth dist.	2603 Apr 16 06:03	24° $\Upsilon$ 52'54	21.03367 AU				
retrograde	2603 Aug 04 05:59	28° $\Upsilon$ 52'49		conjunction	2611 May 18 14:38	27° $\text{♄}$ 13'54	0°-15'-10
min. Earth dist.	2603 Oct 20 08:30	26° $\Upsilon$ 54'55	19.02083 AU	minimum elong	2611 May 18 14:38	27° $\text{♄}$ 13'54	0°15'11
opposition	2603 Oct 21 00:17	26° $\Upsilon$ 53'19	0°-37'-48	behind sun begin	2611 May 18 12:38	27° $\text{♄}$ 13'37	
direct	2604 Jan 04 01:13	24° $\Upsilon$ 56'51		behind sun end	2611 May 18 16:37	27° $\text{♄}$ 14'11	
				max. Earth dist.	2611 May 18 21:40	27° $\text{♄}$ 14'54	20.68633 AU
conjunction	2604 Apr 18 19:03	28° $\Upsilon$ 50'12	0°-33'-14		2611 Jul 09 23:02	0° $\text{♄}$	
minimum elong	2604 Apr 18 19:03	28° $\Upsilon$ 50'12	0°33'15	retrograde	2611 Sep 06 17:59	1° $\text{♄}$ 21'25	
max. Earth dist.	2604 Apr 19 12:25	28° $\Upsilon$ 52'40	21.00614 AU		2611 Nov 06 08:32	30° $\text{♄}$	
	2604 May 09 10:15	0° $\text{♄}$		opposition	2611 Nov 22 12:12	29° $\text{♄}$ 20'30	0°-15'-3
retrograde	2604 Aug 07 16:26	2° $\text{♄}$ 53'13		min. Earth dist.	2611 Nov 22 06:51	29° $\text{♄}$ 21'04	18.65781 AU
opposition	2604 Oct 24 07:11	0° $\text{♄}$ 53'36	0°-35'-31	direct	2612 Feb 05 03:16	27° $\text{♄}$ 21'55	
min. Earth dist.	2604 Oct 23 15:41	0° $\text{♄}$ 55'11	18.99046 AU		2612 Apr 28 02:26	0° $\text{♄}$	
	2604 Nov 16 03:43	30° $\text{♄}$					
direct	2605 Jan 07 07:06	28° $\Upsilon$ 56'59		conjunction	2612 May 22 02:56	1° $\text{♄}$ 21'58	0°-12'-8
	2605 Feb 26 14:25	0° $\text{♄}$		minimum elong	2612 May 22 02:55	1° $\text{♄}$ 21'58	0°12'08
				behind sun begin	2612 May 21 22:27	1° $\text{♄}$ 21'20	
conjunction	2605 Apr 23 02:54	2° $\text{♄}$ 50'53	0°-31'-5	behind sun end	2612 May 22 07:23	1° $\text{♄}$ 22'36	
minimum elong	2605 Apr 23 02:54	2° $\text{♄}$ 50'53	0°31'05	max. Earth dist.	2612 May 22 08:36	1° $\text{♄}$ 22'46	20.62912 AU
max. Earth dist.	2605 Apr 23 18:21	2° $\text{♄}$ 53'05	20.97305 AU	retrograde	2612 Sep 10 07:48	5° $\text{♄}$ 30'20	
retrograde	2605 Aug 12 00:55	6° $\text{♄}$ 54'26		opposition	2612 Nov 25 20:59	3° $\text{♄}$ 29'16	0°-11'-38
opposition	2605 Oct 28 14:19	4° $\text{♄}$ 54'40	0°-33'-3	min. Earth dist.	2612 Nov 25 16:04	3° $\text{♄}$ 29'47	18.59969 AU
min. Earth dist.	2605 Oct 28 01:11	4° $\text{♄}$ 56'00	18.95470 AU	direct	2613 Feb 08 12:24	1° $\text{♄}$ 30'24	
direct	2606 Jan 11 11:43	2° $\text{♄}$ 57'50					
				conjunction	2613 May 26 16:14	5° $\text{♄}$ 31'41	0°-9'00
conjunction	2606 Apr 27 11:23	6° $\text{♄}$ 52'21	0°-28'-46	minimum elong	2613 May 26 16:14	5° $\text{♄}$ 31'41	0°09'02
minimum elong	2606 Apr 27 11:23	6° $\text{♄}$ 52'21	0°28'48	behind sun begin	2613 May 26 10:32	5° $\text{♄}$ 30'52	
max. Earth dist.	2606 Apr 28 01:43	6° $\text{♄}$ 54'24	20.93487 AU	behind sun end	2613 May 26 21:57	5° $\text{♄}$ 32'29	
retrograde	2606 Aug 16 12:22	10° $\text{♄}$ 56'28		max. Earth dist.	2613 May 26 20:26	5° $\text{♄}$ 32'16	20.57014 AU
opposition	2606 Nov 01 21:24	8° $\text{♄}$ 56'30	0°-30'-25	retrograde	2613 Sep 14 20:16	9° $\text{♄}$ 40'55	
min. Earth dist.	2606 Nov 01 08:41	8° $\text{♄}$ 57'48	18.91396 AU	opposition	2613 Nov 30 06:18	7° $\text{♄}$ 39'45	0°-8'-8
direct	2607 Jan 15 18:37	6° $\text{♄}$ 59'24		min. Earth dist.	2613 Nov 30 03:35	7° $\text{♄}$ 40'02	18.53991 AU
				direct	2614 Feb 12 20:00	5° $\text{♄}$ 40'35	
conjunction	2607 May 01 20:21	10° $\text{♄}$ 54'38	0°-26'-18				
minimum elong	2607 May 01 20:21	10° $\text{♄}$ 54'38	0°26'18	conjunction	2614 May 31 06:31	9° $\text{♄}$ 43'11	0°-5'-50
max. Earth dist.	2607 May 02 08:51	10° $\text{♄}$ 56'25	20.89184 AU	minimum elong	2614 May 31 06:30	9° $\text{♄}$ 43'11	0°05'51
retrograde	2607 Aug 20 20:49	14° $\text{♄}$ 59'20		behind sun begin	2614 May 31 00:05	9° $\text{♄}$ 42'16	
opposition	2607 Nov 06 04:40	12° $\text{♄}$ 59'10	0°-27'-37	behind sun end	2614 May 31 12:56	9° $\text{♄}$ 44'06	
min. Earth dist.	2607 Nov 05 18:17	13° $\text{♄}$ 00'14	18.86884 AU	max. Earth dist.	2614 May 31 08:54	9° $\text{♄}$ 43'30	20.50968 AU

retrograde	2614 Sep 19 11:19	13°II53'20		direct	2621 Mar 14 08:34	5°☾45'16	
opposition	2614 Dec 04 16:04	11°II52'05	0°-4'-34				
min. Earth dist.	2614 Dec 04 14:07	11°II52'17	18.47857 AU	conjunction	2621 Jul 01 12:48	9°☾58'17	0°17'12
direct	2615 Feb 17 05:52	9°II52'38		minimum elong	2621 Jul 01 12:47	9°☾58'17	0°17'12
				max. Earth dist.	2621 Jul 01 01:49	9°☾56'39	20.03625 AU
conjunction	2615 Jun 04 21:39	13°II56'37	0°-2'-35	retrograde	2621 Oct 20 05:04	14°☾14'49	
minimum elong	2615 Jun 04 21:41	13°II56'37	0°02'36	opposition	2622 Jan 03 06:02	12°☾12'38	0°20'50
behind sun begin	2615 Jun 04 14:57	13°II55'40		min. Earth dist.	2622 Jan 03 16:14	12°☾11'32	18.00053 AU
behind sun end	2615 Jun 05 04:25	13°II57'34		direct	2622 Mar 18 23:28	10°☾10'27	
max. Earth dist.	2615 Jun 04 22:31	13°II56'42	20.44736 AU				
retrograde	2615 Sep 24 01:23	18°II07'42		conjunction	2622 Jul 06 10:19	14°☾25'00	0°20'19
opposition	2615 Dec 09 02:29	16°II06'22	0°00'-56	minimum elong	2622 Jul 06 10:18	14°☾25'00	0°20'19
min. Earth dist.	2615 Dec 09 02:52	16°II06'20	18.41532 AU	max. Earth dist.	2622 Jul 05 20:36	14°☾22'57	19.96544 AU
direct	2616 Feb 21 15:32	14°II06'38		retrograde	2622 Oct 25 00:08	18°☾42'24	
asc. node	2616 Mar 14 23:54	14°II19'47		opposition	2623 Jan 07 20:52	16°☾40'02	0°24'15
				min. Earth dist.	2623 Jan 08 08:22	16°☾38'48	17.93033 AU
conjunction	2616 Jun 08 13:50	18°II12'03	0°00'48	direct	2623 Mar 23 15:46	14°☾37'23	
minimum elong	2616 Jun 08 13:50	18°II12'03	0°00'48				
behind sun begin	2616 Jun 08 07:06	18°II11'06		conjunction	2623 Jul 11 08:37	18°☾53'30	0°23'19
behind sun end	2616 Jun 08 20:34	18°II13'01		minimum elong	2623 Jul 11 08:37	18°☾53'30	0°23'19
max. Earth dist.	2616 Jun 08 12:23	18°II11'55	20.38326 AU	max. Earth dist.	2623 Jul 10 18:31	18°☾51'23	19.89582 AU
retrograde	2616 Sep 27 17:09	22°II24'06		retrograde	2623 Oct 29 19:48	23°☾11'44	
opposition	2616 Dec 12 13:29	20°II22'40	0°02'42	opposition	2624 Jan 12 12:25	21°☾09'13	0°27'32
min. Earth dist.	2616 Dec 12 14:55	20°II22'30	18.35021 AU	min. Earth dist.	2624 Jan 13 01:04	21°☾07'51	17.86165 AU
direct	2617 Feb 25 02:45	18°II22'35		direct	2624 Mar 27 08:24	19°☾06'08	
conjunction	2617 Jun 13 07:02	22°II29'30	0°04'09	conjunction	2624 Jul 15 07:37	23°☾23'47	0°26'12
minimum elong	2617 Jun 13 07:02	22°II29'30	0°04'10	minimum elong	2624 Jul 15 07:37	23°☾23'47	0°26'13
behind sun begin	2617 Jun 13 00:23	22°II28'33		max. Earth dist.	2624 Jul 14 15:00	23°☾21'17	19.82828 AU
behind sun end	2617 Jun 13 13:41	22°II30'27		retrograde	2624 Nov 02 15:50	27°☾42'50	
max. Earth dist.	2617 Jun 13 03:55	22°II29'05	20.31697 AU	opposition	2625 Jan 16 04:36	25°☾40'11	0°30'41
retrograde	2617 Oct 02 08:41	26°II42'28		min. Earth dist.	2625 Jan 16 18:31	25°☾38'40	17.79552 AU
opposition	2617 Dec 17 01:14	24°II40'56	0°06'23	direct	2625 Apr 01 01:26	23°☾36'40	
min. Earth dist.	2617 Dec 17 05:01	24°II40'32	18.28284 AU				
direct	2618 Mar 01 14:35	22°II40'30		conjunction	2625 Jul 20 07:38	27°☾55'53	0°28'57
				minimum elong	2625 Jul 20 07:37	27°☾55'53	0°28'56
conjunction	2618 Jun 18 01:12	26°II48'55	0°07'27	max. Earth dist.	2625 Jul 19 14:53	27°☾53'21	19.76345 AU
minimum elong	2618 Jun 18 01:11	26°II48'54	0°07'27		2625 Aug 24 17:25	0°♈	
behind sun begin	2618 Jun 17 19:03	26°II48'01		retrograde	2625 Nov 07 13:35	2°♈15'43	
behind sun end	2618 Jun 18 07:20	26°II49'47		opposition	2626 Jan 20 21:36	0°♈12'58	0°33'39
max. Earth dist.	2618 Jun 17 19:16	26°II48'03	20.24868 AU	min. Earth dist.	2626 Jan 21 12:14	0°♈11'23	17.73223 AU
	2618 Aug 17 17:20	0°☾			2626 Jan 25 21:02	30°♈☾	
retrograde	2618 Oct 07 01:09	1°☾02'48		direct	2626 Apr 05 20:06	28°☾09'05	
	2618 Nov 27 10:09	30°♈II			2626 Jun 11 19:43	0°♈	
opposition	2618 Dec 21 13:26	29°II01'07	0°10'04				
min. Earth dist.	2618 Dec 21 18:31	29°II00'34	18.21363 AU	conjunction	2626 Jul 25 08:13	2°♈29'49	0°31'31
direct	2619 Mar 06 04:00	27°II00'16		minimum elong	2626 Jul 25 08:13	2°♈29'49	0°31'31
	2619 Jun 02 20:58	0°☾		max. Earth dist.	2626 Jul 24 13:08	2°♈26'55	19.70183 AU
				retrograde	2626 Nov 12 10:11	6°♈50'25	
conjunction	2619 Jun 22 20:17	1°☾10'12	0°10'45	opposition	2627 Jan 25 15:22	4°♈47'37	0°36'25
minimum elong	2619 Jun 22 20:17	1°☾10'12	0°10'45	min. Earth dist.	2627 Jan 26 07:20	4°♈45'52	17.67250 AU
behind sun begin	2619 Jun 22 15:10	1°☾09'28		direct	2627 Apr 10 14:23	2°♈43'23	
behind sun end	2619 Jun 23 01:24	1°☾10'57					
max. Earth dist.	2619 Jun 22 12:58	1°☾09'08	20.17860 AU	conjunction	2627 Jul 30 09:42	7°♈05'38	0°33'55
retrograde	2619 Oct 11 17:33	5°☾24'59		minimum elong	2627 Jul 30 09:42	7°♈05'38	0°33'55
opposition	2619 Dec 26 02:25	3°☾23'09	0°13'43	max. Earth dist.	2627 Jul 29 14:42	7°♈02'44	19.64388 AU
min. Earth dist.	2619 Dec 26 09:34	3°☾22'24	18.14294 AU	retrograde	2627 Nov 17 09:30	11°♈26'58	
direct	2620 Mar 09 17:20	1°☾21'53		opposition	2628 Jan 30 09:53	9°♈24'08	0°38'59
				min. Earth dist.	2628 Jan 31 02:13	9°♈22'21	17.61637 AU
				direct	2628 Apr 14 11:04	7°♈19'38	
conjunction	2620 Jun 26 15:56	5°☾33'20	0°14'00				
minimum elong	2620 Jun 26 15:56	5°☾33'20	0°14'00	conjunction	2628 Aug 03 11:40	11°♈43'20	0°36'06
behind sun begin	2620 Jun 26 12:43	5°☾32'52		minimum elong	2628 Aug 03 11:40	11°♈43'20	0°36'06
behind sun end	2620 Jun 26 19:09	5°☾33'48		max. Earth dist.	2628 Aug 02 14:37	11°♈40'07	19.58957 AU
max. Earth dist.	2620 Jun 26 05:53	5°☾31'51	20.10760 AU		2628 Oct 02 09:27	15°♈	
retrograde	2620 Oct 15 11:20	9°☾49'02					
opposition	2620 Dec 29 15:57	7°☾47'00	0°17'19	retrograde	2628 Nov 21 06:51	16°♈05'22	
min. Earth dist.	2620 Dec 30 00:24	7°☾46'06	18.07173 AU		2629 Jan 11 09:19	15°♈♈	

opposition	2629 Feb 03 05:17	14°♏02'32	0°41'19	retrograde	2636 Dec 29 06:11	24°♐01'10	
min. Earth dist.	2629 Feb 03 23:14	14°♏00'35	17.56394 AU	opposition	2637 Mar 12 16:20	21°♐58'18	0°49'18
direct	2629 Apr 19 07:16	11°♏57'45		min. Earth dist.	2637 Mar 13 14:07	21°♐55'55	17.28087 AU
	2629 Jul 16 19:58	15°♏		direct	2637 May 27 14:58	19°♐51'46	
				max. Earth dist.	2637 Sep 16 00:00	24°♐20'04	19.27338 AU
conjunction	2629 Aug 08 14:38	16°♏22'52	0°38'04	conjunction	2637 Sep 17 01:12	24°♐24'02	0°44'00
minimum elong	2629 Aug 08 14:38	16°♏22'52	0°38'05	minimum elong	2637 Sep 17 01:12	24°♐24'02	0°44'01
max. Earth dist.	2629 Aug 07 17:24	16°♏19'36	19.53880 AU	retrograde	2638 Jan 03 08:04	28°♐48'45	
retrograde	2629 Nov 26 07:07	20°♏45'31		opposition	2638 Mar 17 16:51	26°♐45'55	0°48'48
opposition	2630 Feb 08 01:17	18°♏42'43	0°43'24	min. Earth dist.	2638 Mar 18 13:25	26°♐43'40	17.26839 AU
min. Earth dist.	2630 Feb 08 19:27	18°♏40'43	17.51484 AU	direct	2638 Jun 01 19:04	24°♐39'16	
direct	2630 Apr 24 06:08	16°♏37'41		max. Earth dist.	2638 Sep 21 06:10	29°♐08'09	19.26416 AU
conjunction	2630 Aug 13 18:04	21°♏04'07	0°39'48	conjunction	2638 Sep 22 05:35	29°♐11'50	0°43'23
minimum elong	2630 Aug 13 18:04	21°♏04'07	0°39'48	minimum elong	2638 Sep 22 05:35	29°♐11'50	0°43'23
max. Earth dist.	2630 Aug 12 19:02	21°♏00'33	19.49129 AU		2638 Oct 05 00:22	0°♑	
retrograde	2630 Dec 01 05:12	25°♏27'19		retrograde	2639 Jan 08 08:11	3°♑36'25	
opposition	2631 Feb 12 22:19	23°♏24'31	0°45'12	opposition	2639 Mar 22 17:57	1°♑33'39	0°47'56
min. Earth dist.	2631 Feb 13 18:12	23°♏22'20	17.46915 AU	min. Earth dist.	2639 Mar 23 14:27	1°♑31'24	17.26257 AU
direct	2631 Apr 29 04:17	21°♏19'13			2639 May 01 22:57	30°♑	
conjunction	2631 Aug 18 21:52	25°♏46'52	0°41'17	direct	2639 Jun 06 20:52	29°♐26'58	
minimum elong	2631 Aug 18 21:52	25°♏46'52	0°41'17		2639 Jul 12 07:57	0°♑	
max. Earth dist.	2631 Aug 17 22:28	25°♏43'14	19.44726 AU	max. Earth dist.	2639 Sep 26 09:49	3°♑55'57	19.26189 AU
	2631 Nov 16 18:10	0°♐		conjunction	2639 Sep 27 09:23	3°♑59'40	0°42'28
retrograde	2631 Dec 06 06:09	0°♐10'33		minimum elong	2639 Sep 27 09:23	3°♑59'40	0°42'28
	2631 Dec 25 19:45	30°♑♏		retrograde	2640 Jan 13 09:37	8°♑24'06	
opposition	2632 Feb 17 19:53	28°♏07'45	0°46'42	opposition	2640 Mar 26 19:10	6°♑21'23	0°46'45
min. Earth dist.	2632 Feb 18 15:34	28°♏05'35	17.42685 AU	min. Earth dist.	2640 Mar 27 14:21	6°♑19'18	17.26378 AU
direct	2632 May 03 05:26	26°♏02'13		direct	2640 Jun 11 01:14	4°♑14'45	
	2632 Aug 14 18:53	0°♐		conjunction	2640 Oct 01 13:13	8°♑47'29	0°41'15
max. Earth dist.	2632 Aug 22 01:40	0°♐27'09	19.40670 AU	minimum elong	2640 Oct 01 13:13	8°♑47'29	0°41'15
conjunction	2632 Aug 23 02:10	0°♐30'57	0°42'29	max. Earth dist.	2640 Sep 30 15:49	8°♑44'06	19.26653 AU
minimum elong	2632 Aug 23 02:10	0°♐30'57	0°42'29	retrograde	2641 Jan 17 09:24	13°♑11'37	
retrograde	2632 Dec 10 04:33	4°♐55'02		opposition	2641 Mar 31 20:36	11°♑09'04	0°45'14
opposition	2633 Feb 21 18:06	2°♐52'12	0°47'54	min. Earth dist.	2641 Apr 01 15:18	11°♑07'02	17.27166 AU
min. Earth dist.	2633 Feb 22 15:25	2°♐49'52	17.38831 AU	direct	2641 Jun 16 04:01	9°♑02'32	
direct	2633 May 08 05:15	0°♐46'26		conjunction	2641 Oct 06 16:31	13°♑35'08	0°39'46
max. Earth dist.	2633 Aug 27 05:40	5°♐12'15	19.37019 AU	minimum elong	2641 Oct 06 16:31	13°♑35'08	0°39'46
conjunction	2633 Aug 28 06:46	5°♐16'09	0°43'24	max. Earth dist.	2641 Oct 05 19:08	13°♑31'46	19.27776 AU
minimum elong	2633 Aug 28 06:46	5°♐16'09	0°43'23	retrograde	2642 Jan 22 09:59	17°♑58'57	
retrograde	2633 Dec 15 05:53	9°♐40'32		opposition	2642 Apr 05 22:21	15°♑56'33	0°43'25
opposition	2634 Feb 26 16:53	7°♐37'42	0°48'46	min. Earth dist.	2642 Apr 06 16:00	15°♑54'38	17.28603 AU
min. Earth dist.	2634 Feb 27 13:40	7°♐35'25	17.35390 AU	direct	2642 Jun 21 08:59	13°♑50'10	
direct	2634 May 13 08:14	5°♐31'42		conjunction	2642 Oct 11 19:23	18°♑22'30	0°38'00
max. Earth dist.	2634 Sep 01 10:16	9°♐58'20	19.33795 AU	minimum elong	2642 Oct 11 19:23	18°♑22'30	0°38'00
conjunction	2634 Sep 02 11:25	10°♐02'16	0°44'00	max. Earth dist.	2642 Oct 11 00:14	18°♑19'29	19.29511 AU
minimum elong	2634 Sep 02 11:25	10°♐02'16	0°44'01	retrograde	2643 Jan 27 09:30	22°♑45'55	
retrograde	2634 Dec 20 04:53	14°♐26'52		opposition	2643 Apr 11 00:18	20°♑43'42	0°41'18
opposition	2635 Mar 03 16:19	12°♐24'01	0°49'17	min. Earth dist.	2643 Apr 11 16:56	20°♑41'54	17.30608 AU
min. Earth dist.	2635 Mar 04 14:19	12°♐21'36	17.32414 AU	direct	2643 Jun 26 13:27	18°♑37'29	
direct	2635 May 18 09:33	10°♐17'49		conjunction	2643 Oct 16 21:44	23°♑09'24	0°35'58
conjunction	2635 Sep 07 16:03	14°♐49'05	0°44'19	minimum elong	2643 Oct 16 21:44	23°♑09'24	0°35'58
minimum elong	2635 Sep 07 16:03	14°♐49'05	0°44'19	max. Earth dist.	2643 Oct 16 02:52	23°♑06'25	19.31791 AU
max. Earth dist.	2635 Sep 06 14:23	14°♐45'04	19.31080 AU	retrograde	2644 Feb 01 08:53	27°♑32'20	
retrograde	2635 Dec 25 06:29	19°♐13'49		opposition	2644 Apr 15 02:11	25°♑30'16	0°38'54
opposition	2636 Mar 07 16:01	17°♐10'57	0°49'28	min. Earth dist.	2644 Apr 15 18:09	25°♑28'33	17.33151 AU
min. Earth dist.	2636 Mar 08 13:06	17°♐08'38	17.29967 AU	direct	2644 Jun 30 17:48	23°♑24'15	
direct	2636 May 22 13:20	15°♐04'33		conjunction	2644 Oct 20 23:38	27°♑55'36	0°33'42
conjunction	2636 Sep 11 20:45	19°♐36'24	0°44'19	minimum elong	2644 Oct 20 23:39	27°♑55'36	0°33'42
minimum elong	2636 Sep 11 20:45	19°♐36'24	0°44'19	max. Earth dist.	2644 Oct 20 06:41	27°♑52'55	19.34576 AU
max. Earth dist.	2636 Sep 10 20:00	19°♐32'31	19.28907 AU				

	2644 Nov 24 01:22	0°♄		behind sun end	2651 Nov 23 17:54	0°♄43'22	
retrograde	2645 Feb 05 08:36	2°♄17'57		max. Earth dist.	2651 Nov 23 08:12	0°♄41'54	19.65324 AU
opposition	2645 Apr 20 04:11	0°♄16'04	0°36'14	retrograde	2652 Mar 09 14:07	4°♄59'27	
min. Earth dist.	2645 Apr 20 18:41	0°♄14'30	17.36149 AU	opposition	2652 May 23 11:04	2°♄58'28	0°12'17
	2645 Apr 26 09:44	30°♄		min. Earth dist.	2652 May 23 15:57	2°♄57'57	17.68236 AU
direct	2645 Jul 05 22:47	28°♄10'15		direct	2652 Aug 08 14:54	0°♄54'24	
	2645 Sep 10 13:03	0°♄					
max. Earth dist.	2645 Oct 25 08:33	2°♄38'20	19.37795 AU	conjunction	2652 Nov 27 08:29	5°♄16'53	0°09'20
				minimum elong	2652 Nov 27 08:29	5°♄16'53	0°09'20
conjunction	2645 Oct 26 00:46	2°♄40'53	0°31'12	behind sun begin	2652 Nov 27 02:55	5°♄16'03	
minimum elong	2645 Oct 26 00:46	2°♄40'53	0°31'11	behind sun end	2652 Nov 27 14:02	5°♄17'44	
retrograde	2646 Feb 10 06:57	7°♄02'36		max. Earth dist.	2652 Nov 27 04:14	5°♄16'15	19.71273 AU
opposition	2646 Apr 25 06:11	5°♄00'52	0°33'19	retrograde	2653 Mar 14 10:13	9°♄32'42	
min. Earth dist.	2646 Apr 25 20:10	4°♄59'22	17.39584 AU	opposition	2653 May 28 10:14	7°♄31'52	0°08'26
direct	2646 Jul 11 01:54	2°♄55'15		min. Earth dist.	2653 May 28 12:06	7°♄31'41	17.74370 AU
max. Earth dist.	2646 Oct 30 10:40	7°♄22'45	19.41440 AU	direct	2653 Aug 13 16:03	5°♄28'11	
conjunction	2646 Oct 31 01:13	7°♄25'02	0°28'30	conjunction	2653 Dec 02 02:22	9°♄49'14	0°05'54
minimum elong	2646 Oct 31 01:13	7°♄25'02	0°28'30	minimum elong	2653 Dec 02 02:21	9°♄49'14	0°05'53
retrograde	2647 Feb 15 06:36	11°♄46'02		behind sun begin	2653 Dec 01 20:03	9°♄48'17	
opposition	2647 Apr 30 07:53	9°♄44'27	0°30'11	behind sun end	2653 Dec 02 08:39	9°♄50'11	
min. Earth dist.	2647 Apr 30 19:52	9°♄43'10	17.43412 AU	max. Earth dist.	2653 Dec 02 01:10	9°♄49'05	19.77588 AU
direct	2647 Jul 16 06:36	7°♄39'04		retrograde	2654 Mar 19 03:54	14°♄04'08	
max. Earth dist.	2647 Nov 04 11:35	12°♄05'48	19.45462 AU	opposition	2654 Jun 02 09:02	12°♄03'30	0°04'35
				min. Earth dist.	2654 Jun 02 09:50	12°♄03'25	17.80851 AU
conjunction	2647 Nov 05 00:46	12°♄07'52	0°25'36	direct	2654 Aug 18 14:40	10°♄00'14	
minimum elong	2647 Nov 05 00:46	12°♄07'52	0°25'37				
	2647 Dec 24 13:45	15°♄		conjunction	2654 Dec 06 19:13	14°♄19'49	0°02'25
retrograde	2648 Feb 20 03:35	16°♄28'07		minimum elong	2654 Dec 06 19:13	14°♄19'49	0°02'26
	2648 Apr 21 04:39	15°♄		behind sun begin	2654 Dec 06 12:39	14°♄18'49	
opposition	2648 May 04 09:24	14°♄26'39	0°26'52	behind sun end	2654 Dec 07 01:48	14°♄20'48	
min. Earth dist.	2648 May 04 20:59	14°♄25'25	17.47623 AU	max. Earth dist.	2654 Dec 06 19:07	14°♄19'48	19.84232 AU
direct	2648 Jul 20 08:21	12°♄21'29		retrograde	2655 Mar 23 22:27	18°♄33'49	
	2648 Oct 10 03:25	15°♄		opposition	2655 Jun 07 06:59	16°♄33'24	0°00'43
				min. Earth dist.	2655 Jun 07 05:02	16°♄33'36	17.87628 AU
conjunction	2648 Nov 08 23:30	16°♄49'12	0°22'34	desc. node	2655 Aug 15 06:16	14°♄32'19	
minimum elong	2648 Nov 08 23:30	16°♄49'12	0°22'33	direct	2655 Aug 23 13:46	14°♄30'34	
max. Earth dist.	2648 Nov 08 11:42	16°♄47'21	19.49865 AU				
retrograde	2649 Feb 24 02:20	21°♄08'36		conjunction	2655 Dec 11 11:22	18°♄48'40	0°-1'-8
opposition	2649 May 09 10:22	19°♄07'16	0°23'24	minimum elong	2655 Dec 11 11:21	18°♄48'40	0°01'09
min. Earth dist.	2649 May 09 19:34	19°♄06'17	17.52195 AU	behind sun begin	2655 Dec 11 04:47	18°♄47'41	
direct	2649 Jul 25 12:19	17°♄02'20		behind sun end	2655 Dec 11 17:56	18°♄49'39	
				max. Earth dist.	2655 Dec 11 14:14	18°♄49'03	19.91117 AU
conjunction	2649 Nov 13 21:18	21°♄28'52	0°19'23	retrograde	2656 Mar 27 15:09	23°♄01'45	
minimum elong	2649 Nov 13 21:18	21°♄28'52	0°19'24	opposition	2656 Jun 11 04:34	21°♄01'34	0°-3'-6
max. Earth dist.	2649 Nov 13 11:36	21°♄27'21	19.54627 AU	min. Earth dist.	2656 Jun 11 01:36	21°♄01'52	17.94597 AU
retrograde	2650 Feb 28 22:02	25°♄47'24		direct	2656 Aug 27 11:22	18°♄59'11	
opposition	2650 May 14 11:12	23°♄46'10	0°19'47				
min. Earth dist.	2650 May 14 19:47	23°♄45'16	17.57148 AU	conjunction	2656 Dec 15 02:28	23°♄15'46	0°-4'-36
direct	2650 Jul 30 12:57	21°♄41'30		minimum elong	2656 Dec 15 02:27	23°♄15'46	0°04'37
				behind sun begin	2656 Dec 14 20:01	23°♄14'48	
conjunction	2650 Nov 18 17:52	26°♄06'43	0°16'06	behind sun end	2656 Dec 15 08:53	23°♄16'44	
minimum elong	2650 Nov 18 17:53	26°♄06'43	0°16'06	max. Earth dist.	2656 Dec 15 06:03	23°♄16'17	19.98160 AU
behind sun begin	2650 Nov 18 17:22	26°♄06'39		retrograde	2657 Apr 01 07:50	27°♄27'58	
behind sun end	2650 Nov 18 18:23	26°♄06'48		opposition	2657 Jun 16 01:26	25°♄27'59	0°-6'-54
max. Earth dist.	2650 Nov 18 09:38	26°♄05'27	19.59783 AU	min. Earth dist.	2657 Jun 15 20:07	25°♄28'32	18.01695 AU
	2651 Feb 03 22:49	0°♄		direct	2657 Sep 01 08:25	23°♄26'03	
retrograde	2651 Mar 05 19:28	0°♄24'22					
	2651 Apr 05 07:57	30°♄		conjunction	2657 Dec 19 16:56	27°♄41'06	0°-7'-58
opposition	2651 May 19 11:24	28°♄23'15	0°16'04	minimum elong	2657 Dec 19 16:56	27°♄41'06	0°07'59
min. Earth dist.	2651 May 19 17:08	28°♄22'38	17.62492 AU	behind sun begin	2657 Dec 19 11:03	27°♄40'14	
direct	2651 Aug 04 15:35	26°♄18'51		behind sun end	2657 Dec 19 22:49	27°♄41'59	
	2651 Nov 12 02:32	0°♄		max. Earth dist.	2657 Dec 19 23:21	27°♄42'04	20.05287 AU
					2658 Jan 28 16:53	0°♄	
conjunction	2651 Nov 23 13:42	0°♄42'44	0°12'45	retrograde	2658 Apr 05 23:30	1°♄52'24	
minimum elong	2651 Nov 23 13:42	0°♄42'44	0°12'45		2658 Jun 17 22:07	30°♄	
behind sun begin	2651 Nov 23 09:30	0°♄42'06		opposition	2658 Jun 20 21:51	29°♄52'38	0°-10'-38



min. Earth dist.	2658 Jun 20 15:28	29° $\overline{7}$ 53'17	18.08834 AU	conjunction	2666 Jan 22 07:00	1° $\approx$ 55'37	0°-31'-14
direct	2658 Sep 06 04:20	27° $\overline{7}$ 51'08		minimum elong	2666 Jan 22 07:00	1° $\approx$ 55'37	0°31'15
	2658 Nov 18 15:48	0° $\overline{8}$		max. Earth dist.	2666 Jan 23 00:24	1° $\approx$ 58'12	20.58592 AU
				retrograde	2666 May 10 09:10	6° $\approx$ 00'11	
conjunction	2658 Dec 24 06:21	2° $\overline{8}$ 04'38	0°-11'-17	opposition	2666 Jul 26 14:27	4° $\approx$ 01'08	0°-35'-50
minimum elong	2658 Dec 24 06:21	2° $\overline{8}$ 04'38	0°11'18	min. Earth dist.	2666 Jul 25 20:59	4° $\approx$ 02'54	18.61610 AU
behind sun begin	2658 Dec 24 01:28	2° $\overline{8}$ 03'55		direct	2666 Oct 11 12:46	2° $\approx$ 02'16	
behind sun end	2658 Dec 24 11:13	2° $\overline{8}$ 05'21					
max. Earth dist.	2658 Dec 24 13:14	2° $\overline{8}$ 05'40	20.12421 AU	conjunction	2667 Jan 26 14:22	6° $\approx$ 04'04	0°-33'-27
retrograde	2659 Apr 10 15:04	6° $\overline{8}$ 15'02		minimum elong	2667 Jan 26 14:22	6° $\approx$ 04'04	0°33'28
opposition	2659 Jun 25 17:31	4° $\overline{8}$ 15'27	0°-14'-17	max. Earth dist.	2667 Jan 27 08:11	6° $\approx$ 06'42	20.64573 AU
min. Earth dist.	2659 Jun 25 09:15	4° $\overline{8}$ 16'17	18.15951 AU	retrograde	2667 May 14 19:31	10° $\approx$ 08'00	
direct	2659 Sep 10 23:13	2° $\overline{8}$ 14'21		min. Earth dist.	2667 Jul 30 10:02	8° $\approx$ 10'50	18.67519 AU
				opposition	2667 Jul 31 04:12	8° $\approx$ 09'01	0°-38'-10
conjunction	2659 Dec 28 19:14	6° $\overline{8}$ 26'19	0°-14'-31	direct	2667 Oct 15 23:27	6° $\approx$ 10'28	
minimum elong	2659 Dec 28 19:14	6° $\overline{8}$ 26'19	0°14'32				
behind sun begin	2659 Dec 28 16:12	6° $\overline{8}$ 25'52		conjunction	2668 Jan 30 21:22	10° $\approx$ 11'04	0°-35'-29
behind sun end	2659 Dec 28 22:17	6° $\overline{8}$ 26'46		minimum elong	2668 Jan 30 21:22	10° $\approx$ 11'04	0°35'30
max. Earth dist.	2659 Dec 29 04:35	6° $\overline{8}$ 27'44	20.19487 AU	max. Earth dist.	2668 Jan 31 17:13	10° $\approx$ 13'59	20.70380 AU
retrograde	2660 Apr 14 05:17	10° $\overline{8}$ 35'49		retrograde	2668 May 18 06:15	14° $\approx$ 14'23	
opposition	2660 Jun 29 12:23	8° $\overline{8}$ 36'23	0°-17'-49	opposition	2668 Aug 03 17:10	12° $\approx$ 15'31	0°-40'-18
min. Earth dist.	2660 Jun 29 03:07	8° $\overline{8}$ 37'20	18.22956 AU	min. Earth dist.	2668 Aug 02 21:24	12° $\approx$ 17'30	18.73211 AU
direct	2660 Sep 14 17:15	6° $\overline{8}$ 35'41		direct	2668 Oct 19 11:57	10° $\approx$ 17'18	
conjunction	2661 Jan 01 07:11	10° $\overline{8}$ 46'07	0°-17'-39	conjunction	2669 Feb 03 03:47	14° $\approx$ 16'46	0°-37'-19
minimum elong	2661 Jan 01 07:11	10° $\overline{8}$ 46'07	0°17'40	minimum elong	2669 Feb 03 03:47	14° $\approx$ 16'46	0°37'19
max. Earth dist.	2661 Jan 01 16:46	10° $\overline{8}$ 47'33	20.26424 AU	max. Earth dist.	2669 Feb 03 23:51	14° $\approx$ 19'43	20.75953 AU
retrograde	2661 Apr 18 19:51	14° $\overline{8}$ 54'44			2669 Feb 15 11:46	15° $\approx$	
opposition	2661 Jul 04 06:44	12° $\overline{8}$ 55'25	0°-21'-14	retrograde	2669 May 22 16:12	18° $\approx$ 19'35	
min. Earth dist.	2661 Jul 03 19:59	12° $\overline{8}$ 56'30	18.29823 AU	min. Earth dist.	2669 Aug 07 09:44	16° $\approx$ 22'49	18.78664 AU
direct	2661 Sep 19 10:29	10° $\overline{8}$ 55'02		opposition	2669 Aug 08 05:47	16° $\approx$ 20'48	0°-42'-13
					2669 Sep 14 06:09	15° $\approx$	
conjunction	2662 Jan 05 18:21	15° $\overline{8}$ 03'57	0°-20'-40	direct	2669 Oct 23 20:53	14° $\approx$ 22'55	
minimum elong	2662 Jan 05 18:21	15° $\overline{8}$ 03'57	0°20'40		2669 Dec 01 07:34	15° $\approx$	
max. Earth dist.	2662 Jan 06 06:18	15° $\overline{8}$ 05'44	20.33197 AU				
retrograde	2662 Apr 23 09:06	19° $\overline{8}$ 11'41		conjunction	2670 Feb 07 09:52	18° $\approx$ 21'20	0°-38'-58
opposition	2662 Jul 09 00:19	17° $\overline{8}$ 12'28	0°-24'-30	minimum elong	2670 Feb 07 09:52	18° $\approx$ 21'20	0°38'59
min. Earth dist.	2662 Jul 08 12:17	17° $\overline{8}$ 13'41	18.36500 AU	max. Earth dist.	2670 Feb 08 07:39	18° $\approx$ 24'31	20.81254 AU
direct	2662 Sep 24 03:07	15° $\overline{8}$ 12'25		retrograde	2670 May 27 02:17	22° $\approx$ 23'41	
				opposition	2670 Aug 12 17:42	20° $\approx$ 25'01	0°-43'-55
conjunction	2663 Jan 10 04:38	19° $\overline{8}$ 19'47	0°-23'-33	min. Earth dist.	2670 Aug 11 20:14	20° $\approx$ 27'09	18.83798 AU
minimum elong	2663 Jan 10 04:38	19° $\overline{8}$ 19'47	0°23'34	direct	2670 Oct 28 08:16	18° $\approx$ 27'28	
max. Earth dist.	2663 Jan 10 16:51	19° $\overline{8}$ 21'37	20.39785 AU				
retrograde	2663 Apr 27 22:01	23° $\overline{8}$ 26'41		conjunction	2671 Feb 11 15:38	22° $\approx$ 24'54	0°-40'-24
opposition	2663 Jul 13 16:56	21° $\overline{8}$ 27'29	0°-27'-37	minimum elong	2671 Feb 11 15:38	22° $\approx$ 24'54	0°40'25
min. Earth dist.	2663 Jul 13 03:48	21° $\overline{8}$ 28'49	18.43010 AU	max. Earth dist.	2671 Feb 12 13:15	22° $\approx$ 28'03	20.86205 AU
direct	2663 Sep 28 18:19	19° $\overline{8}$ 27'44		retrograde	2671 May 31 12:01	26° $\approx$ 26'51	
				min. Earth dist.	2671 Aug 16 07:52	24° $\approx$ 30'22	18.88568 AU
conjunction	2664 Jan 14 14:15	23° $\overline{8}$ 33'38	0°-26'-17	opposition	2671 Aug 17 05:01	24° $\approx$ 28'15	0°-45'-23
minimum elong	2664 Jan 14 14:14	23° $\overline{8}$ 33'38	0°26'17	direct	2671 Nov 01 15:56	22° $\approx$ 31'00	
max. Earth dist.	2664 Jan 15 04:48	23° $\overline{8}$ 35'48	20.46203 AU				
retrograde	2664 May 01 10:16	27° $\overline{8}$ 39'41		conjunction	2672 Feb 15 21:15	26° $\approx$ 27'33	0°-41'-38
opposition	2664 Jul 17 08:50	25° $\overline{8}$ 40'33	0°-30'-33	minimum elong	2672 Feb 15 21:15	26° $\approx$ 27'33	0°41'39
min. Earth dist.	2664 Jul 16 18:10	25° $\overline{8}$ 42'02	18.49344 AU	max. Earth dist.	2672 Feb 16 20:04	26° $\approx$ 30'52	20.90762 AU
direct	2664 Oct 02 09:50	23° $\overline{8}$ 41'05			2672 Apr 30 06:25	0° $\approx$	
				retrograde	2672 Jun 03 21:14	0° $\approx$ 29'09	
conjunction	2665 Jan 17 22:49	27° $\overline{8}$ 45'32	0°-28'-51		2672 Jul 09 07:24	30° $\approx$	
minimum elong	2665 Jan 17 22:49	27° $\overline{8}$ 45'32	0°28'52	opposition	2672 Aug 20 15:52	28° $\approx$ 30'38	0°-46'-38
max. Earth dist.	2665 Jan 18 13:53	27° $\overline{8}$ 47'46	20.52461 AU	min. Earth dist.	2672 Aug 19 17:35	28° $\approx$ 32'51	18.92899 AU
	2665 Feb 26 17:48	0° $\approx$		direct	2672 Nov 05 02:07	26° $\approx$ 33'39	
retrograde	2665 May 05 21:39	1° $\approx$ 50'49			2673 Feb 10 15:36	0° $\approx$	
	2665 Jul 18 13:46	30° $\approx$					
min. Earth dist.	2665 Jul 21 08:21	29° $\overline{8}$ 53'18	18.55549 AU	conjunction	2673 Feb 19 02:23	0° $\approx$ 29'22	0°-42'-40
opposition	2665 Jul 22 00:05	29° $\overline{8}$ 51'42	0°-33'-17	minimum elong	2673 Feb 19 02:23	0° $\approx$ 29'22	0°42'41
direct	2665 Oct 06 22:50	27° $\overline{8}$ 52'32		max. Earth dist.	2673 Feb 20 00:46	0° $\approx$ 32'37	20.94851 AU
	2665 Dec 19 11:37	0° $\approx$		retrograde	2673 Jun 08 06:21	4° $\approx$ 30'41	
				min. Earth dist.	2673 Aug 24 04:49	2° $\approx$ 34'21	18.96751 AU

opposition	2673 Aug 25 02:27	2°♄32'11	0°-47'-39	min. Earth dist.	2681 Sep 26 00:51	4°♅21'45	19.09982 AU
direct	2673 Nov 09 09:20	0°♄35'25		direct	2681 Dec 11 11:56	2°♅23'25	
conjunction	2674 Feb 23 07:39	4°♄30'24	0°-43'-29	conjunction	2682 Mar 26 20:46	6°♅15'09	0°-42'-15
minimum elong	2674 Feb 23 07:39	4°♄30'24	0°43'29	minimum elong	2682 Mar 26 20:46	6°♅15'09	0°42'16
max. Earth dist.	2674 Feb 24 06:50	4°♄33'45	20.98439 AU	max. Earth dist.	2682 Mar 27 19:30	6°♅18'24	21.09903 AU
retrograde	2674 Jun 12 15:03	8°♄31'26		retrograde	2682 Jul 15 02:58	10°♅15'50	
opposition	2674 Aug 29 12:15	6°♄32'57	0°-48'-25	min. Earth dist.	2682 Sep 30 07:04	8°♅18'49	19.09801 AU
min. Earth dist.	2674 Aug 28 13:45	6°♄35'11	19.00068 AU	opposition	2682 Oct 01 04:19	8°♅16'41	0°-46'-4
direct	2674 Nov 13 18:09	4°♄36'21		direct	2682 Dec 15 17:27	6°♅20'26	
conjunction	2675 Feb 27 12:34	8°♄30'38	0°-44'-5	conjunction	2683 Mar 31 01:51	10°♅12'12	0°-41'-9
minimum elong	2675 Feb 27 12:34	8°♄30'38	0°44'07	minimum elong	2683 Mar 31 01:51	10°♅12'12	0°41'10
max. Earth dist.	2675 Feb 28 10:58	8°♄33'52	21.01480 AU	max. Earth dist.	2683 Mar 31 23:25	10°♅15'17	21.09518 AU
retrograde	2675 Jun 16 22:42	12°♄31'27		retrograde	2683 Jul 19 09:58	14°♅13'08	
opposition	2675 Sep 02 21:47	10°♄32'54	0°-48'-57	opposition	2683 Oct 05 11:16	12°♅13'55	0°-44'-45
min. Earth dist.	2675 Sep 02 00:18	10°♄35'03	19.02842 AU	min. Earth dist.	2683 Oct 04 15:37	12°♅15'54	19.09209 AU
direct	2675 Nov 18 00:53	8°♄36'25		direct	2683 Dec 19 20:57	10°♅17'41	
conjunction	2676 Mar 02 17:20	12°♄30'05	0°-44'-28	conjunction	2684 Apr 03 07:14	14°♅09'35	0°-39'-52
minimum elong	2676 Mar 02 17:20	12°♄30'05	0°44'29	minimum elong	2684 Apr 03 07:14	14°♅09'35	0°39'54
max. Earth dist.	2676 Mar 03 16:28	12°♄33'25	21.03989 AU	max. Earth dist.	2684 Apr 04 04:53	14°♅12'40	21.08715 AU
retrograde	2676 Jun 20 07:07	16°♄30'42		retrograde	2684 Jul 22 19:03	18°♅10'49	
min. Earth dist.	2676 Sep 05 08:19	14°♄34'18	19.05088 AU	opposition	2684 Oct 08 18:03	16°♅11'33	0°-43'-14
opposition	2676 Sep 06 06:39	14°♄32'05	0°-49'-15	min. Earth dist.	2684 Oct 07 22:04	16°♅13'34	19.08172 AU
direct	2676 Nov 21 08:52	12°♄35'40		direct	2684 Dec 23 02:43	14°♅15'18	
conjunction	2677 Mar 06 21:52	16°♄28'46	0°-44'-38	conjunction	2685 Apr 07 13:04	18°♅07'26	0°-38'-24
minimum elong	2677 Mar 06 21:52	16°♄28'46	0°44'40	minimum elong	2685 Apr 07 13:04	18°♅07'26	0°38'24
max. Earth dist.	2677 Mar 07 20:22	16°♄32'00	21.05993 AU	max. Earth dist.	2685 Apr 08 09:17	18°♅10'18	21.07444 AU
retrograde	2677 Jun 24 13:31	20°♄29'15		retrograde	2685 Jul 27 02:43	22°♅09'03	
opposition	2677 Sep 10 15:16	18°♄30'31	0°-49'-18	min. Earth dist.	2685 Oct 12 06:58	20°♅11'31	19.06657 AU
min. Earth dist.	2677 Sep 09 17:58	18°♄32'39	19.06873 AU	opposition	2685 Oct 13 00:56	20°♅09'43	0°-41'-30
direct	2677 Nov 25 14:25	16°♄34'09		direct	2685 Dec 27 06:02	18°♅13'25	
conjunction	2678 Mar 11 02:24	20°♄26'47	0°-44'-34	conjunction	2686 Apr 11 19:31	22°♅05'52	0°-36'-44
minimum elong	2678 Mar 11 02:23	20°♄26'47	0°44'35	minimum elong	2686 Apr 11 19:31	22°♅05'52	0°36'45
max. Earth dist.	2678 Mar 12 01:40	20°♄30'07	21.07561 AU	max. Earth dist.	2686 Apr 12 15:17	22°♅08'41	21.05677 AU
retrograde	2678 Jun 28 21:54	24°♄27'10		retrograde	2686 Jul 31 12:30	26°♅07'54	
opposition	2678 Sep 14 23:16	22°♄28'20	0°-49'-7	opposition	2686 Oct 17 07:42	24°♅08'29	0°-39'-33
min. Earth dist.	2678 Sep 14 01:04	22°♄30'33	19.08227 AU	min. Earth dist.	2686 Oct 16 13:52	24°♅10'17	19.04612 AU
direct	2678 Nov 29 21:33	20°♄32'00		direct	2686 Dec 31 12:14	22°♅12'07	
conjunction	2679 Mar 15 06:50	24°♄24'15	0°-44'-18	conjunction	2687 Apr 16 02:20	26°♅04'58	0°-34'-53
minimum elong	2679 Mar 15 06:50	24°♄24'15	0°44'19	minimum elong	2687 Apr 16 02:20	26°♅04'58	0°34'54
max. Earth dist.	2679 Mar 16 05:24	24°♄27'29	21.08709 AU	max. Earth dist.	2687 Apr 16 20:13	26°♅07'30	21.03350 AU
retrograde	2679 Jul 03 03:42	28°♄24'37			2687 Jul 18 09:59	0°♄	
min. Earth dist.	2679 Sep 18 09:50	26°♄27'47	19.09189 AU	retrograde	2687 Aug 04 20:19	0°♄07'26	
opposition	2679 Sep 19 06:54	26°♄25'41	0°-48'-41		2687 Aug 22 12:00	30°♄	
direct	2679 Dec 04 01:55	24°♄29'22		opposition	2687 Oct 21 14:38	28°♅07'55	0°-37'-25
conjunction	2680 Mar 18 11:25	28°♄21'21	0°-43'-49	min. Earth dist.	2687 Oct 20 23:06	28°♅09'30	19.02006 AU
minimum elong	2680 Mar 18 11:25	28°♄21'21	0°43'50	direct	2688 Jan 04 15:55	26°♅11'25	
max. Earth dist.	2680 Mar 19 10:35	28°♄24'40	21.09485 AU		2688 Apr 18 00:35	0°♄	
	2680 Apr 17 01:39	0°♅		conjunction	2688 Apr 19 09:45	0°♄04'44	0°-32'-52
retrograde	2680 Jul 06 12:05	2°♅21'45		minimum elong	2688 Apr 19 09:45	0°♄04'44	0°32'52
opposition	2680 Sep 22 14:15	0°♅22'44	0°-48'-2	max. Earth dist.	2688 Apr 20 02:50	0°♄07'10	21.00479 AU
min. Earth dist.	2680 Sep 21 16:18	0°♅24'56	19.09772 AU	retrograde	2688 Aug 08 06:32	4°♄07'42	
	2680 Oct 02 02:53	30°♄		opposition	2688 Oct 24 21:32	2°♄08'02	0°-35'-5
direct	2680 Dec 07 08:04	28°♄26'27		min. Earth dist.	2688 Oct 24 06:16	2°♄09'35	18.98854 AU
	2681 Feb 07 14:37	0°♅		direct	2689 Jan 07 22:29	0°♄11'21	
conjunction	2681 Mar 22 15:51	2°♅18'16	0°-43'-8	conjunction	2689 Apr 23 17:26	4°♄05'12	0°-30'-40
minimum elong	2681 Mar 22 15:52	2°♅18'16	0°43'08	minimum elong	2689 Apr 23 17:26	4°♄05'12	0°30'41
max. Earth dist.	2681 Mar 23 14:14	2°♅21'27	21.09879 AU	max. Earth dist.	2689 Apr 24 08:37	4°♄07'22	20.97069 AU
retrograde	2681 Jul 10 18:20	6°♅18'47		retrograde	2689 Aug 12 14:49	8°♄08'42	
opposition	2681 Sep 26 21:32	4°♅19'41	0°-47'-10	opposition	2689 Oct 29 04:40	6°♄08'51	0°-32'-35

min. Earth dist.	2689 Oct 28 15:43	6°♄10'10	18.95194 AU	direct	2697 Feb 09 01:58	2°♄44'18	
direct	2690 Jan 12 02:56	4°♄11'56					
conjunction	2690 Apr 28 01:51	8°♄06'25	0°-28'-19	conjunction	2697 May 27 06:03	6°♄45'36	0°-8'-25
minimum elong	2690 Apr 28 01:51	8°♄06'25	0°28'19	minimum elong	2697 May 27 06:03	6°♄45'36	0°08'25
max. Earth dist.	2690 Apr 28 16:11	8°♄08'28	20.93191 AU	behind sun begin	2697 May 27 00:10	6°♄44'46	
retrograde	2690 Aug 17 01:23	12°♄10'28		behind sun end	2697 May 27 11:56	6°♄46'26	
opposition	2690 Nov 02 11:31	10°♄10'26	0°-29'-55	max. Earth dist.	2697 May 27 10:21	6°♄46'12	20.57318 AU
min. Earth dist.	2690 Nov 01 22:54	10°♄11'43	18.91093 AU	retrograde	2697 Sep 15 10:20	10°♄54'52	
direct	2691 Jan 16 09:28	8°♄13'16		opposition	2697 Nov 30 20:19	8°♄53'47	0°-7'-28
				min. Earth dist.	2697 Nov 30 17:27	8°♄54'05	18.54324 AU
				direct	2698 Feb 13 09:25	6°♄54'42	
conjunction	2691 May 02 10:40	12°♄08'28	0°-25'-49				
minimum elong	2691 May 02 10:40	12°♄08'28	0°25'51	conjunction	2698 May 31 20:20	10°♄57'18	0°-5'-13
max. Earth dist.	2691 May 02 23:10	12°♄10'15	20.88891 AU	minimum elong	2698 May 31 20:21	10°♄57'18	0°05'14
	2691 Jun 26 13:41	15°♄		behind sun begin	2698 May 31 13:50	10°♄56'22	
retrograde	2691 Aug 21 10:39	16°♄13'07		behind sun end	2698 Jun 01 02:52	10°♄58'13	
	2691 Oct 18 01:56	15°♄		max. Earth dist.	2698 May 31 22:54	10°♄57'38	20.51317 AU
opposition	2691 Nov 06 18:50	14°♄12'54	0°-27'-5	retrograde	2698 Sep 20 01:47	15°♄07'28	
min. Earth dist.	2691 Nov 06 08:26	14°♄13'58	18.86613 AU	opposition	2698 Dec 05 05:58	13°♄06'16	0°-3'-53
direct	2692 Jan 20 14:32	12°♄15'28		min. Earth dist.	2698 Dec 05 03:56	13°♄06'29	18.48207 AU
	2692 Apr 14 19:05	15°♄		direct	2699 Feb 17 20:09	11°♄06'53	
conjunction	2692 May 05 19:59	16°♄11'27	0°-23'-12	conjunction	2699 Jun 05 11:35	15°♄10'51	0°-1'-57
minimum elong	2692 May 05 20:00	16°♄11'27	0°23'12	minimum elong	2699 Jun 05 11:35	15°♄10'51	0°01'57
max. Earth dist.	2692 May 06 07:43	16°♄13'08	20.84255 AU	behind sun begin	2699 Jun 05 04:50	15°♄09'54	
retrograde	2692 Aug 24 21:57	20°♄16'46		behind sun end	2699 Jun 05 18:20	15°♄11'49	
opposition	2692 Nov 10 02:12	18°♄16'21	0°-24'-6	max. Earth dist.	2699 Jun 05 12:16	15°♄10'55	20.45075 AU
min. Earth dist.	2692 Nov 09 15:58	18°♄17'24	18.81817 AU	retrograde	2699 Sep 24 14:52	19°♄21'56	
direct	2693 Jan 23 21:18	16°♄18'39		opposition	2699 Dec 09 16:29	17°♄20'38	0°00'-15
				min. Earth dist.	2699 Dec 09 16:58	17°♄20'35	18.41846 AU
conjunction	2693 May 10 06:04	20°♄15'32	0°-20'-26	asc. node	2700 Jan 05 03:20	16°♄17'16	
minimum elong	2693 May 10 06:04	20°♄15'32	0°20'27	direct	2700 Feb 22 04:54	15°♄20'55	
max. Earth dist.	2693 May 10 16:03	20°♄16'57	20.79314 AU				
retrograde	2693 Aug 29 08:18	24°♄21'32		conjunction	2700 Jun 10 03:41	19°♄26'17	0°01'27
opposition	2693 Nov 14 09:53	22°♄20'57	0°-20'-59	minimum elong	2700 Jun 10 03:40	19°♄26'17	0°01'27
min. Earth dist.	2693 Nov 14 01:50	22°♄21'47	18.76749 AU	behind sun begin	2700 Jun 09 20:55	19°♄25'19	
direct	2694 Jan 28 03:02	20°♄22'58		behind sun end	2700 Jun 10 10:25	19°♄27'15	
				max. Earth dist.	2700 Jun 10 02:08	19°♄26'07	20.38599 AU
conjunction	2694 May 14 16:57	24°♄20'50	0°-17'-34	retrograde	2700 Sep 29 07:28	23°♄38'16	
minimum elong	2694 May 14 16:57	24°♄20'50	0°17'35	opposition	2700 Dec 14 03:31	21°♄36'50	0°03'25
max. Earth dist.	2694 May 15 01:53	24°♄22'06	20.74134 AU	min. Earth dist.	2700 Dec 14 05:03	21°♄36'40	18.35243 AU
retrograde	2694 Sep 02 21:00	28°♄27'35		direct	2701 Feb 26 17:43	19°♄36'45	
opposition	2694 Nov 18 17:48	26°♄26'51	0°-17'-45				
min. Earth dist.	2694 Nov 18 09:59	26°♄27'39	18.71446 AU	conjunction	2701 Jun 14 20:53	23°♄43'34	0°04'47
direct	2695 Feb 01 10:37	24°♄28'34		minimum elong	2701 Jun 14 20:54	23°♄43'34	0°04'46
				behind sun begin	2701 Jun 14 14:18	23°♄42'37	
conjunction	2695 May 19 04:26	28°♄27'30	0°-14'-36	behind sun end	2701 Jun 15 03:29	23°♄44'30	
minimum elong	2695 May 19 04:25	28°♄27'30	0°14'37	max. Earth dist.	2701 Jun 14 17:30	23°♄43'06	20.31868 AU
behind sun begin	2695 May 19 01:43	28°♄27'07		retrograde	2701 Oct 03 21:33	27°♄56'26	
behind sun end	2695 May 19 07:08	28°♄27'53		opposition	2701 Dec 18 15:08	25°♄54'51	0°07'05
max. Earth dist.	2695 May 19 11:40	28°♄28'32	20.68717 AU	min. Earth dist.	2701 Dec 18 19:10	25°♄54'25	18.28405 AU
	2695 Jun 15 11:32	0°♄		direct	2702 Mar 03 04:30	23°♄54'21	
retrograde	2695 Sep 07 07:58	2°♄35'04					
opposition	2695 Nov 23 02:14	0°♄34'11	0°-14'-25	conjunction	2702 Jun 19 14:57	28°♄02'38	0°08'05
min. Earth dist.	2695 Nov 22 20:34	0°♄34'46	18.65929 AU	minimum elong	2702 Jun 19 14:57	28°♄02'38	0°08'05
	2695 Dec 06 23:59	30°♄		behind sun begin	2702 Jun 19 08:58	28°♄01'46	
direct	2696 Feb 05 17:09	28°♄35'39		behind sun end	2702 Jun 19 20:57	28°♄03'29	
	2696 Apr 04 04:55	0°♄		max. Earth dist.	2702 Jun 19 09:01	28°♄01'46	20.24947 AU
					2702 Jul 23 23:10	0°♄	
conjunction	2696 May 22 16:48	2°♄35'43	0°-11'-32	retrograde	2702 Oct 08 14:56	2°♄16'23	
minimum elong	2696 May 22 16:48	2°♄35'43	0°11'34	opposition	2702 Dec 23 03:19	0°♄14'37	0°10'46
behind sun begin	2696 May 22 12:04	2°♄35'03		min. Earth dist.	2702 Dec 23 08:29	0°♄14'04	18.21405 AU
behind sun end	2696 May 22 21:33	2°♄36'23			2702 Dec 28 21:19	30°♄	
max. Earth dist.	2696 May 22 22:49	2°♄36'34	20.63118 AU	direct	2703 Mar 07 18:33	28°♄13'42	
retrograde	2696 Sep 10 22:14	6°♄44'07			2703 May 12 14:32	0°♄	
opposition	2696 Nov 26 10:56	4°♄43'07	0°-10'-59				
min. Earth dist.	2696 Nov 26 05:41	4°♄43'40	18.60229 AU	conjunction	2703 Jun 24 09:46	2°♄23'28	0°11'22

minimum elong	2703 Jun 24 09:46	2°☿23'28	0°11'21	min. Earth dist.	2711 Jan 27 20:10	5°♄56'47	17.68088 AU
behind sun begin	2703 Jun 24 04:54	2°☿22'46		direct	2711 Apr 12 04:00	3°♄54'22	
behind sun end	2703 Jun 24 14:37	2°☿24'10					
max. Earth dist.	2703 Jun 24 02:28	2°☿22'24	20.17879 AU	conjunction	2711 Jul 31 22:22	8°♄16'34	0°34'20
retrograde	2703 Oct 13 06:33	6°☿38'07		minimum elong	2711 Jul 31 22:22	8°♄16'34	0°34'20
opposition	2703 Dec 27 16:12	4°☿36'10	0°14'24	max. Earth dist.	2711 Jul 31 03:43	8°♄13'43	19.65272 AU
min. Earth dist.	2703 Dec 27 23:27	4°☿35'23	18.14302 AU	retrograde	2711 Nov 18 22:17	12°♄37'53	
direct	2704 Mar 11 07:25	2°☿34'47		opposition	2712 Jan 31 23:10	10°♄35'12	0°39'27
				min. Earth dist.	2712 Feb 01 15:22	10°♄33'26	17.62547 AU
conjunction	2704 Jun 28 05:25	6°☿46'04	0°14'36	direct	2712 Apr 15 23:38	8°♄30'49	
minimum elong	2704 Jun 28 05:25	6°☿46'04	0°14'36	max. Earth dist.	2712 Aug 04 03:27	12°♄51'15	19.59872 AU
behind sun begin	2704 Jun 28 02:47	6°☿45'41					
behind sun end	2704 Jun 28 08:03	6°☿46'27		conjunction	2712 Aug 05 00:29	12°♄54'29	0°36'30
max. Earth dist.	2704 Jun 27 19:38	6°☿44'38	20.10770 AU	minimum elong	2712 Aug 05 00:29	12°♄54'29	0°36'30
retrograde	2704 Oct 17 00:35	11°☿01'36			2712 Sep 09 10:24	15°♄	
opposition	2704 Dec 31 05:30	8°☿59'28	0°17'58	retrograde	2712 Nov 22 21:07	17°♄16'31	
min. Earth dist.	2704 Dec 31 13:50	8°☿58'35	18.07199 AU	opposition	2713 Feb 04 18:28	15°♄13'49	0°41'45
direct	2705 Mar 15 22:25	6°☿57'38		min. Earth dist.	2713 Feb 05 12:20	15°♄11'52	17.57300 AU
					2713 Feb 10 01:13	15°♄	
conjunction	2705 Jul 03 02:05	11°☿10'28	0°17'47	direct	2713 Apr 20 20:01	13°♄09'10	
minimum elong	2705 Jul 03 02:05	11°☿10'28	0°17'47		2713 Jun 26 17:28	15°♄	
max. Earth dist.	2705 Jul 02 15:20	11°☿08'53	20.03676 AU	max. Earth dist.	2713 Aug 09 06:09	17°♄30'57	19.54753 AU
retrograde	2705 Oct 21 18:01	15°☿26'52					
opposition	2706 Jan 04 19:36	13°☿24'34	0°21'28	conjunction	2713 Aug 10 03:27	17°♄34'14	0°38'26
min. Earth dist.	2706 Jan 05 05:39	13°☿23'29	18.00145 AU	minimum elong	2713 Aug 10 03:27	17°♄34'14	0°38'25
direct	2706 Mar 20 13:10	11°☿22'17		retrograde	2713 Nov 27 20:29	21°♄56'53	
				opposition	2714 Feb 09 14:35	19°♄54'11	0°43'47
conjunction	2706 Jul 07 23:22	15°☿36'41	0°20'52	min. Earth dist.	2714 Feb 10 08:50	19°♄52'11	17.52315 AU
minimum elong	2706 Jul 07 23:22	15°☿36'41	0°20'52	direct	2714 Apr 25 18:35	17°♄49'16	
max. Earth dist.	2706 Jul 07 10:07	15°☿34'42	19.96682 AU	max. Earth dist.	2714 Aug 14 07:25	22°♄12'01	19.49901 AU
retrograde	2706 Oct 26 12:59	19°☿53'57					
opposition	2707 Jan 09 10:15	17°☿51'30	0°24'51	conjunction	2714 Aug 15 06:44	22°♄15'37	0°40'08
min. Earth dist.	2707 Jan 09 21:20	17°☿50'18	17.93235 AU	minimum elong	2714 Aug 15 06:43	22°♄15'37	0°40'08
direct	2707 Mar 25 05:29	15°☿48'47		retrograde	2714 Dec 02 19:00	26°♄38'49	
				opposition	2715 Feb 14 11:33	24°♄36'05	0°45'32
conjunction	2707 Jul 12 21:38	20°☿04'45	0°23'51	min. Earth dist.	2715 Feb 15 07:28	24°♄33'55	17.47626 AU
minimum elong	2707 Jul 12 21:38	20°☿04'45	0°23'52	direct	2715 Apr 30 16:55	22°♄30'54	
max. Earth dist.	2707 Jul 12 07:56	20°☿02'42	19.89854 AU	max. Earth dist.	2715 Aug 19 11:02	26°♄54'48	19.45368 AU
retrograde	2707 Oct 31 08:06	24°☿22'51					
opposition	2708 Jan 14 01:44	22°☿20'18	0°28'07	conjunction	2715 Aug 20 10:37	26°♄58'27	0°41'34
min. Earth dist.	2708 Jan 14 14:01	22°☿18'58	17.86522 AU	minimum elong	2715 Aug 20 10:37	26°♄58'27	0°41'34
direct	2708 Mar 28 21:45	20°☿17'12			2715 Oct 12 21:00	0°♄	
				retrograde	2715 Dec 07 18:57	1°♄22'06	
conjunction	2708 Jul 16 20:28	24°☿34'43	0°26'43		2716 Feb 03 14:28	30°♄	
minimum elong	2708 Jul 16 20:28	24°☿34'43	0°26'42	opposition	2716 Feb 19 08:59	29°♄19'20	0°47'00
max. Earth dist.	2708 Jul 16 04:21	24°☿32'18	19.83268 AU	min. Earth dist.	2716 Feb 20 04:49	29°♄17'10	17.43260 AU
retrograde	2708 Nov 04 04:40	28°☿53'41		direct	2716 May 04 18:04	27°♄13'52	
opposition	2709 Jan 17 17:56	26°☿51'02	0°31'14		2716 Jul 27 11:16	0°♄	
min. Earth dist.	2709 Jan 18 07:17	26°☿49'35	17.80079 AU				
direct	2709 Apr 02 15:23	24°☿47'33		conjunction	2716 Aug 24 14:49	1°♄42'30	0°42'44
				minimum elong	2716 Aug 24 14:49	1°♄42'30	0°42'43
conjunction	2709 Jul 21 20:27	29°☿06'40	0°29'25	max. Earth dist.	2716 Aug 23 13:58	1°♄38'39	19.41179 AU
minimum elong	2709 Jul 21 20:27	29°☿06'40	0°29'26	retrograde	2716 Dec 11 17:41	6°♄06'32	
max. Earth dist.	2709 Jul 21 04:10	29°☿04'12	19.76959 AU	opposition	2717 Feb 23 07:14	4°♄03'44	0°48'09
	2709 Aug 05 14:04	0°♄		min. Earth dist.	2717 Feb 24 04:39	4°♄01'23	17.39275 AU
retrograde	2709 Nov 09 01:38	3°♄26'25		direct	2717 May 09 18:14	1°♄57'59	
opposition	2710 Jan 22 10:49	1°♄23'44	0°34'10				
min. Earth dist.	2710 Jan 23 01:06	1°♄22'11	17.73920 AU	conjunction	2717 Aug 29 19:19	6°♄27'35	0°43'36
	2710 Feb 26 18:12	30°♄		minimum elong	2717 Aug 29 19:19	6°♄27'35	0°43'36
direct	2710 Apr 07 09:06	29°☿19'56		max. Earth dist.	2717 Aug 28 18:09	6°♄23'40	19.37405 AU
	2710 May 16 10:35	0°♄		retrograde	2717 Dec 16 18:26	10°♄51'54	
conjunction	2710 Jul 26 21:02	3°♄40'36	0°31'58	opposition	2718 Feb 28 05:51	8°♄49'03	0°48'58
minimum elong	2710 Jul 26 21:02	3°♄40'36	0°31'58	min. Earth dist.	2718 Mar 01 02:43	8°♄46'46	17.35722 AU
max. Earth dist.	2710 Jul 26 02:21	3°♄37'46	19.70960 AU	direct	2718 May 14 21:21	6°♄43'03	
retrograde	2710 Nov 13 23:51	8°♄01'10					
opposition	2711 Jan 27 04:37	5°♄58'28	0°36'55	conjunction	2718 Sep 03 23:57	11°♄13'30	0°44'10
				minimum elong	2718 Sep 03 23:57	11°♄13'30	0°44'09

max. Earth dist.	2718 Sep 02 22:36	11° <del>10</del> 09'32	19.34087 AU	opposition	2727 Apr 12 13:19	21° <del>05</del> 54'22	0°41'03
retrograde	2718 Dec 21 17:34	15° <del>10</del> 38'01		min. Earth dist.	2727 Apr 13 06:19	21° <del>05</del> 52'32	17.30767 AU
opposition	2719 Mar 05 05:13	13° <del>10</del> 35'08	0°49'26	direct	2727 Jun 28 01:52	19° <del>05</del> 48'14	
min. Earth dist.	2719 Mar 06 03:15	13° <del>10</del> 32'43	17.32672 AU				
direct	2719 May 19 22:17	11° <del>10</del> 28'54		conjunction	2727 Oct 18 10:41	24° <del>05</del> 20'12	0°35'43
max. Earth dist.	2719 Sep 08 02:51	15° <del>10</del> 56'01	19.31314 AU	minimum elong	2727 Oct 18 10:41	24° <del>05</del> 20'12	0°35'43
				max. Earth dist.	2727 Oct 17 15:31	24° <del>05</del> 17'11	19.31878 AU
conjunction	2719 Sep 09 04:25	16° <del>10</del> 00'02	0°44'26	retrograde	2728 Feb 02 22:36	28° <del>05</del> 43'13	
minimum elong	2719 Sep 09 04:24	16° <del>10</del> 00'02	0°44'26	opposition	2728 Apr 16 15:23	26° <del>05</del> 41'12	0°38'35
retrograde	2719 Dec 26 19:04	20° <del>10</del> 24'41		min. Earth dist.	2728 Apr 17 07:36	26° <del>05</del> 39'27	17.33161 AU
opposition	2720 Mar 09 04:53	18° <del>10</del> 21'46	0°49'34	direct	2728 Jul 02 05:54	24° <del>05</del> 35'14	
min. Earth dist.	2720 Mar 10 01:54	18° <del>10</del> 19'27	17.30181 AU				
direct	2720 May 24 02:03	16° <del>10</del> 15'20		conjunction	2728 Oct 22 12:42	29° <del>05</del> 06'40	0°33'24
max. Earth dist.	2720 Sep 12 08:22	20° <del>10</del> 43'10	19.29114 AU	minimum elong	2728 Oct 22 12:42	29° <del>05</del> 06'40	0°33'23
				max. Earth dist.	2728 Oct 21 19:30	29° <del>05</del> 03'57	19.34499 AU
conjunction	2720 Sep 13 09:05	20° <del>10</del> 47'02	0°44'23		2728 Nov 05 16:12	0° <del>05</del> 00'00	
minimum elong	2720 Sep 13 09:05	20° <del>10</del> 47'02	0°44'22	retrograde	2729 Feb 06 22:27	3° <del>05</del> 29'07	
retrograde	2720 Dec 30 18:47	25° <del>10</del> 11'43		opposition	2729 Apr 21 17:22	1° <del>05</del> 27'16	0°35'52
opposition	2721 Mar 14 05:03	23° <del>10</del> 08'49	0°49'21	min. Earth dist.	2729 Apr 22 08:18	1° <del>05</del> 25'39	17.35988 AU
min. Earth dist.	2721 Mar 15 02:47	23° <del>10</del> 06'26	17.28300 AU		2729 May 29 02:04	30° <del>05</del> 00'00	
direct	2721 May 29 03:46	21° <del>10</del> 02'14		direct	2729 Jul 07 11:39	29° <del>05</del> 21'29	
					2729 Aug 14 22:55	0° <del>05</del> 00'00	
conjunction	2721 Sep 18 13:32	25° <del>10</del> 34'23	0°44'01				
minimum elong	2721 Sep 18 13:32	25° <del>10</del> 34'23	0°44'01	conjunction	2729 Oct 27 13:57	3° <del>05</del> 52'13	0°30'51
max. Earth dist.	2721 Sep 17 12:36	25° <del>10</del> 30'28	19.27565 AU	minimum elong	2729 Oct 27 13:57	3° <del>05</del> 52'13	0°30'51
retrograde	2722 Jan 04 20:18	29° <del>10</del> 59'02		max. Earth dist.	2729 Oct 26 21:18	3° <del>05</del> 49'36	19.37549 AU
opposition	2722 Mar 19 05:38	27° <del>10</del> 56'10	0°48'47	retrograde	2730 Feb 11 20:24	8° <del>05</del> 14'02	
min. Earth dist.	2722 Mar 20 01:58	27° <del>10</del> 53'56	17.27087 AU	opposition	2730 Apr 26 19:26	6° <del>05</del> 12'19	0°32'54
direct	2722 Jun 03 07:32	25° <del>10</del> 49'31		min. Earth dist.	2730 Apr 27 09:41	6° <del>05</del> 10'48	17.39254 AU
	2722 Sep 17 22:12	0° <del>05</del> 00'00		direct	2730 Jul 12 15:02	4° <del>05</del> 06'44	
conjunction	2722 Sep 23 17:48	0° <del>05</del> 21'59	0°43'22	conjunction	2730 Nov 01 14:19	8° <del>05</del> 36'37	0°28'06
minimum elong	2722 Sep 23 17:48	0° <del>05</del> 21'59	0°43'22	minimum elong	2730 Nov 01 14:19	8° <del>05</del> 36'37	0°28'06
max. Earth dist.	2722 Sep 22 18:37	0° <del>05</del> 18'20	19.26689 AU	max. Earth dist.	2730 Oct 31 23:34	8° <del>05</del> 34'18	19.41028 AU
retrograde	2723 Jan 09 20:37	4° <del>05</del> 46'32		retrograde	2731 Feb 16 19:38	12° <del>05</del> 57'44	
opposition	2723 Mar 24 06:44	2° <del>05</del> 43'45	0°47'53	opposition	2731 May 01 21:09	10° <del>05</del> 56'09	0°29'44
min. Earth dist.	2723 Mar 25 03:08	2° <del>05</del> 41'31	17.26555 AU	min. Earth dist.	2731 May 02 09:29	10° <del>05</del> 54'50	17.42921 AU
direct	2723 Jun 08 10:03	0° <del>05</del> 37'06		direct	2731 Jul 17 19:49	8° <del>05</del> 50'45	
conjunction	2723 Sep 28 21:48	5° <del>05</del> 09'45	0°42'24	conjunction	2731 Nov 06 13:57	13° <del>05</del> 19'40	0°25'11
minimum elong	2723 Sep 28 21:48	5° <del>05</del> 09'45	0°42'23	minimum elong	2731 Nov 06 13:58	13° <del>05</del> 19'40	0°25'10
max. Earth dist.	2723 Sep 27 22:27	5° <del>05</del> 06'04	19.26511 AU	max. Earth dist.	2731 Nov 06 00:25	13° <del>05</del> 17'33	19.44903 AU
retrograde	2724 Jan 14 21:49	9° <del>05</del> 34'09			2731 Dec 03 18:40	15° <del>05</del> 00'00	
opposition	2724 Mar 28 07:50	7° <del>05</del> 31'30	0°46'39	retrograde	2732 Feb 21 16:45	17° <del>05</del> 40'01	
min. Earth dist.	2724 Mar 29 02:55	7° <del>05</del> 29'25	17.26712 AU	opposition	2732 May 05 22:32	15° <del>05</del> 38'32	0°26'23
direct	2724 Jun 12 13:36	5° <del>05</del> 24'54		min. Earth dist.	2732 May 06 10:19	15° <del>05</del> 37'16	17.47002 AU
max. Earth dist.	2724 Oct 02 04:28	9° <del>05</del> 54'16	19.26991 AU		2732 May 21 05:25	15° <del>05</del> 00'00	
				direct	2732 Jul 21 21:55	13° <del>05</del> 33'20	
conjunction	2724 Oct 03 01:45	9° <del>05</del> 57'38	0°41'09		2732 Sep 18 18:12	15° <del>05</del> 00'00	
minimum elong	2724 Oct 03 01:45	9° <del>05</del> 57'38	0°41'09				
retrograde	2725 Jan 18 22:39	14° <del>05</del> 21'47		conjunction	2732 Nov 10 12:42	18° <del>05</del> 01'10	0°22'06
opposition	2725 Apr 02 09:29	12° <del>05</del> 19'18	0°45'05	minimum elong	2732 Nov 10 12:43	18° <del>05</del> 01'10	0°22'07
min. Earth dist.	2725 Apr 03 04:20	12° <del>05</del> 17'14	17.27493 AU	max. Earth dist.	2732 Nov 10 00:53	17° <del>05</del> 59'19	19.49199 AU
direct	2725 Jun 17 17:13	10° <del>05</del> 12'50		retrograde	2733 Feb 25 15:16	22° <del>05</del> 20'40	
max. Earth dist.	2725 Oct 07 07:43	14° <del>05</del> 42'04	19.28077 AU	opposition	2733 May 10 23:36	20° <del>05</del> 19'17	0°22'52
				min. Earth dist.	2733 May 11 08:56	20° <del>05</del> 18'18	17.51493 AU
conjunction	2725 Oct 08 05:07	14° <del>05</del> 45'27	0°39'36	direct	2733 Jul 27 01:22	18° <del>05</del> 14'19	
minimum elong	2725 Oct 08 05:07	14° <del>05</del> 45'27	0°39'36				
retrograde	2726 Jan 23 22:56	19° <del>05</del> 09'19		conjunction	2733 Nov 15 10:22	22° <del>05</del> 40'56	0°18'53
opposition	2726 Apr 07 11:18	17° <del>05</del> 06'59	0°43'13	minimum elong	2733 Nov 15 10:22	22° <del>05</del> 40'56	0°18'53
min. Earth dist.	2726 Apr 08 05:03	17° <del>05</del> 05'04	17.28867 AU	max. Earth dist.	2733 Nov 15 00:39	22° <del>05</del> 39'25	19.53904 AU
direct	2726 Jun 22 20:56	15° <del>05</del> 00'40		retrograde	2734 Mar 02 11:18	26° <del>05</del> 59'35	
				opposition	2734 May 16 00:27	24° <del>05</del> 58'18	0°19'13
conjunction	2726 Oct 13 08:16	19° <del>05</del> 33'03	0°37'47	min. Earth dist.	2734 May 16 08:57	24° <del>05</del> 57'24	17.56422 AU
minimum elong	2726 Oct 13 08:16	19° <del>05</del> 33'03	0°37'47	direct	2734 Aug 01 02:09	22° <del>05</del> 53'34	
max. Earth dist.	2726 Oct 12 13:00	19° <del>05</del> 30'01	19.29724 AU				
retrograde	2727 Jan 28 23:39	23° <del>05</del> 56'32		conjunction	2734 Nov 20 07:05	27° <del>05</del> 18'54	0°15'35

minimum elong	2734 Nov 20 07:05	27° <del>18</del> 18'54	0°15'35	max. Earth dist.	2740 Dec 16 19:38	24° <del>29</del> 29'24	19.97587 AU
behind sun begin	2734 Nov 20 05:19	27° <del>18</del> 18'38		retrograde	2741 Apr 02 22:20	28° <del>41</del> 41'10	
behind sun end	2734 Nov 20 08:51	27° <del>19</del> 19'11		opposition	2741 Jun 17 15:03	26° <del>41</del> 41'10	0°-7'-35
max. Earth dist.	2734 Nov 19 23:02	27° <del>17</del> 17'40	19.59063 AU	min. Earth dist.	2741 Jun 17 09:56	26° <del>41</del> 41'41	18.01086 AU
	2735 Jan 05 11:07	0° <del>3</del>		direct	2741 Sep 02 21:53	24° <del>39</del> 39'10	
retrograde	2735 Mar 07 08:59	1° <del>36</del> 36'39					
	2735 May 11 06:59	30° <del>18</del>		conjunction	2741 Dec 21 06:47	28° <del>54</del> 54'18	0°-8'-35
opposition	2735 May 21 00:32	29° <del>35</del> 35'29	0°15'28	minimum elong	2741 Dec 21 06:47	28° <del>54</del> 54'18	0°08'36
min. Earth dist.	2735 May 21 06:07	29° <del>34</del> 34'53	17.61797 AU	behind sun begin	2741 Dec 21 01:02	28° <del>53</del> 53'27	
direct	2735 Aug 06 04:20	27° <del>31</del> 31'02		behind sun end	2741 Dec 21 12:31	28° <del>55</del> 55'10	
	2735 Oct 24 07:58	0° <del>3</del>		max. Earth dist.	2741 Dec 21 12:53	28° <del>55</del> 55'13	20.04631 AU
					2742 Jan 08 08:38	0° <del>3</del>	
conjunction	2735 Nov 25 02:57	1° <del>55</del> 55'03	0°12'12	retrograde	2742 Apr 07 13:07	3° <del>05</del> 05'39	
minimum elong	2735 Nov 25 02:56	1° <del>55</del> 55'02	0°12'12	opposition	2742 Jun 22 11:34	1° <del>05</del> 05'50	0°-11'-20
behind sun begin	2735 Nov 24 22:27	1° <del>54</del> 54'22		min. Earth dist.	2742 Jun 22 05:36	1° <del>06</del> 06'26	18.08128 AU
behind sun end	2735 Nov 25 07:26	1° <del>55</del> 55'43			2742 Jul 20 15:52	30° <del>18</del>	
max. Earth dist.	2735 Nov 24 21:28	1° <del>54</del> 54'12	19.64657 AU	direct	2742 Sep 07 17:54	29° <del>40</del> 04'15	
retrograde	2736 Mar 11 03:25	6° <del>11</del> 11'52			2742 Oct 24 19:59	0° <del>3</del>	
opposition	2736 May 25 00:22	4° <del>10</del> 10'52	0°11'40	conjunction	2742 Dec 25 20:25	3° <del>17</del> 17'50	0°-11'-54
min. Earth dist.	2736 May 25 05:01	4° <del>10</del> 10'22	17.67604 AU	minimum elong	2742 Dec 25 20:25	3° <del>17</del> 17'50	0°11'55
direct	2736 Aug 10 04:08	2° <del>06</del> 06'46		behind sun begin	2742 Dec 25 15:49	3° <del>17</del> 17'09	
				behind sun end	2742 Dec 26 01:02	3° <del>18</del> 18'31	
conjunction	2736 Nov 28 21:44	6° <del>29</del> 29'22	0°08'46	max. Earth dist.	2742 Dec 26 02:55	3° <del>18</del> 18'48	20.11657 AU
minimum elong	2736 Nov 28 21:44	6° <del>29</del> 29'22	0°08'46	retrograde	2743 Apr 12 05:28	7° <del>28</del> 28'17	
behind sun begin	2736 Nov 28 16:01	6° <del>28</del> 28'30		opposition	2743 Jun 27 07:06	5° <del>28</del> 28'36	0°-14'-58
behind sun end	2736 Nov 29 03:27	6° <del>30</del> 30'14		min. Earth dist.	2743 Jun 26 23:13	5° <del>29</del> 29'25	18.15128 AU
max. Earth dist.	2736 Nov 28 17:39	6° <del>28</del> 28'45	19.70676 AU	direct	2743 Sep 12 13:02	3° <del>27</del> 27'24	
retrograde	2737 Mar 15 23:57	10° <del>45</del> 45'17					
opposition	2737 May 29 23:31	8° <del>44</del> 44'27	0°07'48	conjunction	2743 Dec 30 09:24	7° <del>39</del> 39'28	0°-15'-8
min. Earth dist.	2737 May 30 01:09	8° <del>44</del> 44'17	17.73804 AU	minimum elong	2743 Dec 30 09:23	7° <del>39</del> 39'28	0°15'09
direct	2737 Aug 15 05:08	6° <del>40</del> 40'44		behind sun begin	2743 Dec 30 06:56	7° <del>39</del> 39'07	
				behind sun end	2743 Dec 30 11:51	7° <del>39</del> 39'50	
conjunction	2737 Dec 03 15:46	11° <del>01</del> 01'55	0°05'19	max. Earth dist.	2743 Dec 30 18:21	7° <del>40</del> 40'49	20.18601 AU
minimum elong	2737 Dec 03 15:46	11° <del>01</del> 01'55	0°05'19	retrograde	2744 Apr 15 19:17	11° <del>49</del> 49'00	
behind sun begin	2737 Dec 03 09:23	11° <del>00</del> 00'57		opposition	2744 Jul 01 02:09	9° <del>49</del> 49'29	0°-18'-30
behind sun end	2737 Dec 03 22:09	11° <del>02</del> 02'53		min. Earth dist.	2744 Jun 30 17:20	9° <del>50</del> 50'23	18.22011 AU
max. Earth dist.	2737 Dec 03 14:33	11° <del>01</del> 01'45	19.77051 AU	direct	2744 Sep 16 07:46	7° <del>48</del> 48'39	
retrograde	2738 Mar 20 17:10	15° <del>16</del> 16'55		conjunction	2745 Jan 02 21:15	11° <del>59</del> 59'10	0°-18'-15
opposition	2738 Jun 03 22:21	13° <del>16</del> 16'17	0°03'55	minimum elong	2745 Jan 02 21:15	11° <del>59</del> 59'10	0°18'15
min. Earth dist.	2738 Jun 03 23:05	13° <del>16</del> 16'13	17.80334 AU	max. Earth dist.	2745 Jan 03 06:31	12° <del>00</del> 00'33	20.25424 AU
direct	2738 Aug 20 03:42	11° <del>13</del> 13'00		retrograde	2745 Apr 20 09:46	16° <del>07</del> 07'50	
				opposition	2745 Jul 05 20:27	14° <del>08</del> 08'24	0°-21'-54
conjunction	2738 Dec 08 08:40	15° <del>32</del> 32'42	0°01'49	min. Earth dist.	2745 Jul 05 09:55	14° <del>09</del> 09'28	18.28775 AU
minimum elong	2738 Dec 08 08:40	15° <del>32</del> 32'42	0°01'48	direct	2745 Sep 21 00:35	12° <del>07</del> 07'54	
behind sun begin	2738 Dec 08 02:05	15° <del>31</del> 31'42					
behind sun end	2738 Dec 08 15:15	15° <del>33</del> 33'41		conjunction	2746 Jan 07 08:27	16° <del>16</del> 16'53	0°-21'-15
max. Earth dist.	2738 Dec 08 08:31	15° <del>32</del> 32'41	19.83724 AU	minimum elong	2746 Jan 07 08:27	16° <del>16</del> 16'53	0°21'16
retrograde	2739 Mar 25 12:25	19° <del>46</del> 46'47		max. Earth dist.	2746 Jan 07 20:15	16° <del>18</del> 18'39	20.32117 AU
opposition	2739 Jun 08 20:26	17° <del>46</del> 46'22	0°00'03	retrograde	2746 Apr 24 22:29	20° <del>24</del> 24'40	
min. Earth dist.	2739 Jun 08 18:27	17° <del>46</del> 46'34	17.87114 AU	opposition	2746 Jul 10 13:53	18° <del>25</del> 25'19	0°-25'-9
desc. node	2739 Jun 13 10:48	17° <del>34</del> 34'54		min. Earth dist.	2746 Jul 10 02:09	18° <del>26</del> 26'30	18.35403 AU
direct	2739 Aug 25 03:12	15° <del>43</del> 43'30		direct	2746 Sep 25 17:44	16° <del>25</del> 25'08	
conjunction	2739 Dec 13 00:59	20° <del>01</del> 01'42	0°-1'-45	conjunction	2747 Jan 11 18:35	20° <del>32</del> 32'36	0°-24'-6
minimum elong	2739 Dec 13 00:58	20° <del>01</del> 01'42	0°01'46	minimum elong	2747 Jan 11 18:35	20° <del>32</del> 32'36	0°24'07
behind sun begin	2739 Dec 12 18:23	20° <del>00</del> 00'43		max. Earth dist.	2747 Jan 12 06:48	20° <del>34</del> 34'26	20.38687 AU
behind sun end	2739 Dec 13 07:33	20° <del>02</del> 02'41		retrograde	2747 Apr 29 11:32	24° <del>39</del> 39'34	
max. Earth dist.	2739 Dec 13 03:38	20° <del>02</del> 02'03	19.90590 AU	opposition	2747 Jul 15 06:34	22° <del>40</del> 40'16	0°-28'-14
retrograde	2740 Mar 29 04:15	24° <del>14</del> 14'52		min. Earth dist.	2747 Jul 14 17:21	22° <del>41</del> 41'36	18.41929 AU
opposition	2740 Jun 12 18:01	22° <del>14</del> 14'40	0°-3'-47	direct	2747 Sep 30 08:20	20° <del>40</del> 40'23	
min. Earth dist.	2740 Jun 12 15:17	22° <del>14</del> 14'57	17.94051 AU				
direct	2740 Aug 29 00:23	20° <del>12</del> 12'15					
conjunction	2740 Dec 16 16:16	24° <del>28</del> 28'55	0°-5'-13	conjunction	2748 Jan 16 04:07	24° <del>46</del> 46'24	0°-26'-49
minimum elong	2740 Dec 16 16:16	24° <del>28</del> 28'55	0°05'14	minimum elong	2748 Jan 16 04:07	24° <del>46</del> 46'24	0°26'51
behind sun begin	2740 Dec 16 09:54	24° <del>27</del> 27'58		max. Earth dist.	2748 Jan 16 18:54	24° <del>48</del> 48'36	20.45152 AU
behind sun end	2740 Dec 16 22:38	24° <del>29</del> 29'52		retrograde	2748 May 02 23:09	28° <del>52</del> 52'33	

opposition	2748 Jul 18 22:24	26°☾53'20	0°-31'-8	minimum elong	2756 Feb 17 11:44	27°☾42'51	0°41'58
min. Earth dist.	2748 Jul 18 07:40	26°☾54'49	18.48347 AU	max. Earth dist.	2756 Feb 18 10:34	27°☾46'10	20.90587 AU
direct	2748 Oct 03 23:29	24°☾53'47			2756 Mar 30 05:53	0°☾	
				retrograde	2756 Jun 05 12:16	1°☾44'29	
conjunction	2749 Jan 19 12:48	28°☾58'23	0°-29'-21		2756 Aug 16 09:15	30°☾	
minimum elong	2749 Jan 19 12:48	28°☾58'23	0°29'22	min. Earth dist.	2756 Aug 21 08:00	29°☾48'11	18.92722 AU
max. Earth dist.	2749 Jan 20 04:04	29°☾00'39	20.51527 AU	opposition	2756 Aug 22 06:07	29°☾45'59	0°-46'-57
	2749 Feb 05 22:35	0°☾		direct	2756 Nov 06 16:23	27°☾48'59	
retrograde	2749 May 07 11:27	3°☾03'48			2757 Jan 20 14:12	0°☾	
opposition	2749 Jul 23 13:41	1°☾04'39	0°-33'-50				
min. Earth dist.	2749 Jul 22 21:36	1°☾06'16	18.54690 AU	conjunction	2757 Feb 20 17:05	1°☾44'44	0°-42'-56
	2749 Aug 20 18:27	30°☾		minimum elong	2757 Feb 20 17:05	1°☾44'44	0°42'57
direct	2749 Oct 08 12:25	29°☾05'26		max. Earth dist.	2757 Feb 21 15:17	1°☾47'57	20.94664 AU
	2749 Nov 24 07:49	0°☾		retrograde	2757 Jun 09 20:02	5°☾46'03	
conjunction	2750 Jan 23 20:56	3°☾08'42	0°-31'-43	opposition	2757 Aug 26 16:42	3°☾47'31	0°-47'-55
minimum elong	2750 Jan 23 20:56	3°☾08'42	0°31'44	min. Earth dist.	2757 Aug 25 19:13	3°☾49'40	18.96552 AU
max. Earth dist.	2750 Jan 24 14:38	3°☾11'19	20.57809 AU	direct	2757 Nov 10 23:43	1°☾50'42	
retrograde	2750 May 11 22:33	7°☾13'25		conjunction	2758 Feb 24 22:18	5°☾45'40	0°-43'-43
min. Earth dist.	2750 Jul 27 10:27	5°☾16'09	18.60903 AU	minimum elong	2758 Feb 24 22:18	5°☾45'40	0°43'44
opposition	2750 Jul 28 04:09	5°☾14'22	0°-36'-21	max. Earth dist.	2758 Feb 25 21:26	5°☾49'00	20.98225 AU
direct	2750 Oct 13 01:34	3°☾15'31		retrograde	2758 Jun 14 05:05	9°☾46'38	
				min. Earth dist.	2758 Aug 30 04:17	7°☾50'18	18.99838 AU
conjunction	2751 Jan 28 04:25	7°☾17'30	0°-33'-54	opposition	2758 Aug 31 02:33	7°☾48'05	0°-48'-39
minimum elong	2751 Jan 28 04:25	7°☾17'30	0°33'55	direct	2758 Nov 15 09:06	5°☾51'24	
max. Earth dist.	2751 Jan 28 22:23	7°☾20'09	20.63946 AU				
retrograde	2751 May 16 09:54	11°☾21'34		conjunction	2759 Mar 01 03:09	9°☾45'38	0°-44'-16
opposition	2751 Aug 01 17:51	9°☾22'38	0°-38'-40	minimum elong	2759 Mar 01 03:09	9°☾45'38	0°44'17
min. Earth dist.	2751 Jul 31 23:21	9°☾24'30	18.66965 AU	max. Earth dist.	2759 Mar 02 01:27	9°☾48'51	21.01248 AU
direct	2751 Oct 17 12:55	7°☾24'08		retrograde	2759 Jun 18 12:18	13°☾46'20	
				opposition	2759 Sep 04 11:54	11°☾47'43	0°-49'-8
conjunction	2752 Feb 01 11:33	11°☾24'55	0°-35'-54	min. Earth dist.	2759 Sep 03 14:30	11°☾49'51	19.02616 AU
minimum elong	2752 Feb 01 11:33	11°☾24'55	0°35'54	direct	2759 Nov 19 15:08	9°☾51'07	
max. Earth dist.	2752 Feb 02 07:35	11°☾27'52	20.69900 AU				
	2752 Apr 16 00:34	15°☾		conjunction	2760 Mar 04 07:53	13°☾44'42	0°-44'-36
retrograde	2752 May 19 20:37	15°☾28'24		minimum elong	2760 Mar 04 07:53	13°☾44'42	0°44'38
	2752 Jun 23 13:51	15°☾		max. Earth dist.	2760 Mar 05 07:08	13°☾48'03	21.03787 AU
min. Earth dist.	2752 Aug 04 11:04	13°☾31'35	18.72796 AU	retrograde	2760 Jun 21 20:20	17°☾45'11	
opposition	2752 Aug 05 07:01	13°☾29'35	0°-40'-46	opposition	2760 Sep 07 20:43	15°☾46'29	0°-49'-23
direct	2752 Oct 21 00:42	11°☾31'26		min. Earth dist.	2760 Sep 06 22:23	15°☾48'42	19.04922 AU
	2753 Jan 26 21:58	15°☾		direct	2760 Nov 22 23:28	13°☾49'58	
conjunction	2753 Feb 04 17:56	15°☾31'04	0°-37'-43	conjunction	2761 Mar 08 12:12	17°☾42'59	0°-44'-44
minimum elong	2753 Feb 04 17:56	15°☾31'04	0°37'44	minimum elong	2761 Mar 08 12:12	17°☾42'59	0°44'44
max. Earth dist.	2753 Feb 05 14:06	15°☾34'01	20.75599 AU	max. Earth dist.	2761 Mar 09 10:47	17°☾46'13	21.05873 AU
retrograde	2753 May 24 06:51	19°☾34'02		retrograde	2761 Jun 26 03:39	21°☾43'20	
opposition	2753 Aug 09 19:45	17°☾35'19	0°-42'-39	min. Earth dist.	2761 Sep 11 07:45	19°☾46'41	19.06810 AU
min. Earth dist.	2753 Aug 08 23:27	17°☾37'21	18.78362 AU	opposition	2761 Sep 12 05:15	19°☾44'32	0°-49'-23
direct	2753 Oct 25 10:53	15°☾37'30		direct	2761 Nov 27 04:33	17°☾48'05	
conjunction	2754 Feb 09 00:15	19°☾36'04	0°-39'-20	conjunction	2762 Mar 12 16:46	21°☾40'39	0°-44'-38
minimum elong	2754 Feb 09 00:15	19°☾36'04	0°39'20	minimum elong	2762 Mar 12 16:46	21°☾40'39	0°44'39
max. Earth dist.	2754 Feb 09 22:08	19°☾39'16	20.80996 AU	max. Earth dist.	2762 Mar 13 16:14	21°☾44'01	21.07560 AU
retrograde	2754 May 28 17:23	23°☾38'32		retrograde	2762 Jun 30 11:15	25°☾40'55	
min. Earth dist.	2754 Aug 13 10:12	21°☾42'03	18.83577 AU	opposition	2762 Sep 16 13:03	23°☾42'03	0°-49'-9
opposition	2754 Aug 14 07:38	21°☾39'55	0°-44'-19	min. Earth dist.	2762 Sep 15 14:40	23°☾44'17	19.08297 AU
direct	2754 Oct 29 21:32	19°☾42'24		direct	2762 Dec 01 11:34	21°☾45'40	
conjunction	2755 Feb 13 06:05	23°☾39'58	0°-40'-44	conjunction	2763 Mar 16 21:08	25°☾37'53	0°-44'-19
minimum elong	2755 Feb 13 06:05	23°☾39'58	0°40'46	minimum elong	2763 Mar 16 21:08	25°☾37'53	0°44'20
max. Earth dist.	2755 Feb 14 03:39	23°☾43'06	20.86010 AU	max. Earth dist.	2763 Mar 17 19:46	25°☾41'08	21.08850 AU
retrograde	2755 Jun 02 02:11	27°☾42'00		retrograde	2763 Jul 04 18:28	29°☾38'10	
opposition	2755 Aug 18 19:11	25°☾43'27	0°-45'-45	opposition	2763 Sep 20 20:49	27°☾39'14	0°-48'-41
min. Earth dist.	2755 Aug 17 22:01	25°☾45'34	18.88391 AU	min. Earth dist.	2763 Sep 19 23:26	27°☾41'22	19.09402 AU
direct	2755 Nov 03 06:23	23°☾46'13		direct	2763 Dec 05 15:52	25°☾42'56	
conjunction	2756 Feb 17 11:44	27°☾42'51	0°-41'-57	conjunction	2764 Mar 20 01:35	29°☾34'54	0°-43'-48

minimum elong	2764 Mar 20 01:35	29° <del>✕</del> 34'54	0°43'49		2772 Mar 28 03:18	0° <del>8</del>	
max. Earth dist.	2764 Mar 21 00:59	29° <del>✕</del> 38'15	21.09765 AU				
	2764 Mar 27 09:16	0° <del>Υ</del>		conjunction	2772 Apr 21 00:18	1° <del>8</del> 20'19	0°-32'-31
retrograde	2764 Jul 08 02:20	3° <del>Υ</del> 35'15		minimum elong	2772 Apr 21 00:18	1° <del>8</del> 20'19	0°32'33
min. Earth dist.	2764 Sep 23 06:02	1° <del>Υ</del> 38'30	19.10115 AU	max. Earth dist.	2772 Apr 21 17:04	1° <del>8</del> 22'43	21.00493 AU
opposition	2764 Sep 24 04:13	1° <del>Υ</del> 36'17	0°-48'00	retrograde	2772 Aug 09 20:43	5° <del>8</del> 23'16	
	2764 Nov 10 08:20	30° <del>R</del> <del>✕</del>		opposition	2772 Oct 26 12:01	3° <del>8</del> 23'36	0°-34'-42
direct	2764 Dec 08 22:04	29° <del>✕</del> 40'02		min. Earth dist.	2772 Oct 25 21:01	3° <del>8</del> 25'08	18.98803 AU
	2765 Jan 05 20:11	0° <del>Υ</del>		direct	2773 Jan 09 13:06	1° <del>8</del> 26'54	
conjunction	2765 Mar 24 06:10	3° <del>Υ</del> 31'52	0°-43'-5	conjunction	2773 Apr 25 07:59	5° <del>8</del> 20'45	0°-30'-18
minimum elong	2765 Mar 24 06:10	3° <del>Υ</del> 31'52	0°43'06	minimum elong	2773 Apr 25 07:59	5° <del>8</del> 20'45	0°30'18
max. Earth dist.	2765 Mar 25 04:37	3° <del>Υ</del> 35'04	21.10281 AU	max. Earth dist.	2773 Apr 25 22:49	5° <del>8</del> 22'51	20.96974 AU
retrograde	2765 Jul 12 09:23	7° <del>Υ</del> 32'22		retrograde	2773 Aug 14 04:51	9° <del>8</del> 24'12	
opposition	2765 Sep 28 11:30	5° <del>Υ</del> 33'21	0°-47'-5	opposition	2773 Oct 30 18:58	7° <del>8</del> 24'19	0°-32'-9
min. Earth dist.	2765 Sep 27 14:38	5° <del>Υ</del> 35'27	19.10434 AU	min. Earth dist.	2773 Oct 30 06:12	7° <del>8</del> 25'37	18.95065 AU
direct	2765 Dec 13 01:48	3° <del>Υ</del> 37'10		direct	2774 Jan 13 17:27	5° <del>8</del> 27'22	
conjunction	2766 Mar 28 11:08	7° <del>Υ</del> 28'57	0°-42'-9	conjunction	2774 Apr 29 16:18	9° <del>8</del> 21'49	0°-27'-54
minimum elong	2766 Mar 28 11:08	7° <del>Υ</del> 28'57	0°42'10	minimum elong	2774 Apr 29 16:18	9° <del>8</del> 21'49	0°27'56
max. Earth dist.	2766 Mar 29 10:02	7° <del>Υ</del> 32'13	21.10395 AU	max. Earth dist.	2774 Apr 30 06:35	9° <del>8</del> 23'52	20.93041 AU
retrograde	2766 Jul 16 17:59	11° <del>Υ</del> 29'40		retrograde	2774 Aug 18 15:48	13° <del>8</del> 25'49	
opposition	2766 Oct 02 18:29	9° <del>Υ</del> 30'37	0°-45'-57	opposition	2774 Nov 04 01:55	11° <del>8</del> 25'44	0°-29'-26
min. Earth dist.	2766 Oct 01 21:12	9° <del>Υ</del> 32'45	19.10319 AU	min. Earth dist.	2774 Nov 03 13:16	11° <del>8</del> 27'01	18.90934 AU
direct	2766 Dec 17 07:40	7° <del>Υ</del> 34'29		direct	2775 Jan 18 00:25	9° <del>8</del> 28'31	
conjunction	2767 Apr 01 16:13	11° <del>Υ</del> 26'19	0°-41'-1	conjunction	2775 May 04 00:55	13° <del>8</del> 23'40	0°-25'-23
minimum elong	2767 Apr 01 16:13	11° <del>Υ</del> 26'19	0°41'03	minimum elong	2775 May 04 00:55	13° <del>8</del> 23'40	0°25'23
max. Earth dist.	2767 Apr 02 13:48	11° <del>Υ</del> 29'24	21.10052 AU	max. Earth dist.	2775 May 04 13:23	13° <del>8</del> 25'27	20.88730 AU
retrograde	2767 Jul 21 00:52	15° <del>Υ</del> 27'18			2775 Jun 01 18:58	15° <del>8</del>	
min. Earth dist.	2767 Oct 06 05:55	13° <del>Υ</del> 30'11	19.09745 AU	retrograde	2775 Aug 23 00:17	17° <del>8</del> 28'16	
opposition	2767 Oct 07 01:29	13° <del>Υ</del> 28'14	0°-44'-35	opposition	2775 Nov 08 09:09	15° <del>8</del> 27'59	0°-26'-34
direct	2767 Dec 21 11:09	11° <del>Υ</del> 32'06		min. Earth dist.	2775 Nov 07 22:38	15° <del>8</del> 29'03	18.86464 AU
conjunction	2768 Apr 04 21:50	15° <del>Υ</del> 24'05	0°-39'-42		2775 Nov 19 20:34	15° <del>R</del> <del>8</del>	
minimum elong	2768 Apr 04 21:50	15° <del>Υ</del> 24'05	0°39'42	direct	2776 Jan 22 04:51	13° <del>8</del> 30'30	
max. Earth dist.	2768 Apr 05 19:28	15° <del>Υ</del> 27'10	21.09240 AU		2776 Mar 22 18:45	15° <del>8</del>	
retrograde	2768 Jul 24 10:07	19° <del>Υ</del> 25'24		conjunction	2776 May 07 10:19	17° <del>8</del> 26'26	0°-22'-43
opposition	2768 Oct 10 08:21	17° <del>Υ</del> 26'16	0°-43'-1	minimum elong	2776 May 07 10:19	17° <del>8</del> 26'26	0°22'45
min. Earth dist.	2768 Oct 09 12:40	17° <del>Υ</del> 28'15	19.08669 AU	max. Earth dist.	2776 May 07 22:13	17° <del>8</del> 28'08	20.84122 AU
direct	2768 Dec 24 16:50	15° <del>Υ</del> 30'08		retrograde	2776 Aug 26 12:20	21° <del>8</del> 31'41	
conjunction	2769 Apr 09 03:42	19° <del>Υ</del> 22'21	0°-38'-11	opposition	2776 Nov 11 16:26	19° <del>8</del> 31'13	0°-23'-33
minimum elong	2769 Apr 09 03:42	19° <del>Υ</del> 22'21	0°38'12	min. Earth dist.	2776 Nov 11 06:02	19° <del>8</del> 32'17	18.81710 AU
max. Earth dist.	2769 Apr 09 23:35	19° <del>Υ</del> 25'11	21.07897 AU	direct	2777 Jan 25 12:24	17° <del>8</del> 33'27	
retrograde	2769 Jul 28 17:23	23° <del>Υ</del> 24'02		conjunction	2777 May 11 20:19	21° <del>8</del> 30'17	0°-19'-56
opposition	2769 Oct 14 15:22	21° <del>Υ</del> 24'49	0°-41'-14	minimum elong	2777 May 11 20:19	21° <del>8</del> 30'17	0°19'57
min. Earth dist.	2769 Oct 13 21:47	21° <del>Υ</del> 26'35	19.07050 AU	max. Earth dist.	2777 May 12 06:22	21° <del>8</del> 31'43	20.79233 AU
direct	2769 Dec 28 20:44	19° <del>Υ</del> 28'37		retrograde	2777 Aug 30 21:52	25° <del>8</del> 36'15	
conjunction	2770 Apr 13 10:17	23° <del>Υ</del> 21'08	0°-36'-28	opposition	2777 Nov 16 00:11	23° <del>8</del> 35'37	0°-20'-25
minimum elong	2770 Apr 13 10:17	23° <del>Υ</del> 21'08	0°36'29	min. Earth dist.	2777 Nov 15 15:58	23° <del>8</del> 36'28	18.76696 AU
max. Earth dist.	2770 Apr 14 05:38	23° <del>Υ</del> 23'54	21.05997 AU	direct	2778 Jan 29 17:28	21° <del>8</del> 37'36	
retrograde	2770 Aug 02 03:00	27° <del>Υ</del> 23'12		conjunction	2778 May 16 07:10	25° <del>8</del> 35'25	0°-17'-2
opposition	2770 Oct 18 22:05	25° <del>Υ</del> 23'53	0°-39'-15	minimum elong	2778 May 16 07:10	25° <del>8</del> 35'25	0°17'03
min. Earth dist.	2770 Oct 18 04:42	25° <del>Υ</del> 25'38	19.04852 AU	max. Earth dist.	2778 May 16 16:21	25° <del>8</del> 36'43	20.74108 AU
direct	2771 Jan 02 02:26	23° <del>Υ</del> 27'34		retrograde	2778 Sep 04 10:41	29° <del>8</del> 42'07	
conjunction	2771 Apr 17 17:05	27° <del>Υ</del> 20'28	0°-34'-35	opposition	2778 Nov 20 07:59	27° <del>8</del> 41'21	0°-17'-10
minimum elong	2771 Apr 17 17:05	27° <del>Υ</del> 20'28	0°34'36	min. Earth dist.	2778 Nov 20 00:02	27° <del>8</del> 42'11	18.71447 AU
max. Earth dist.	2771 Apr 18 10:23	27° <del>Υ</del> 22'56	21.03513 AU	direct	2779 Feb 03 01:37	25° <del>8</del> 43'04	
	2771 Jun 07 11:05	0° <del>8</del>		conjunction	2779 May 20 18:42	29° <del>8</del> 41'58	0°-14'-3
retrograde	2771 Aug 06 10:42	1° <del>8</del> 22'57		minimum elong	2779 May 20 18:42	29° <del>8</del> 41'58	0°14'04
	2771 Oct 07 22:06	30° <del>R</del> <del>Υ</del>		behind sun begin	2779 May 20 15:30	29° <del>8</del> 41'31	
opposition	2771 Oct 23 05:07	29° <del>Υ</del> 23'29	0°-37'-4	behind sun end	2779 May 20 21:55	29° <del>8</del> 42'25	
min. Earth dist.	2771 Oct 22 13:57	29° <del>Υ</del> 25'01	19.02088 AU	max. Earth dist.	2779 May 21 02:01	29° <del>8</del> 43'01	20.68746 AU
direct	2772 Jan 06 06:48	27° <del>Υ</del> 26'59			2779 May 25 23:30	0° <del>II</del>	



retrograde	2779 Sep 08 21:53	3°II49'30		conjunction	2786 Jun 20 05:20	29°II17'21	0°08'44
opposition	2779 Nov 24 16:30	1°II48'37	0°-13'-48	minimum elong	2786 Jun 20 05:19	29°II17'21	0°08'43
min. Earth dist.	2779 Nov 24 10:50	1°II49'13	18.65975 AU	behind sun begin	2786 Jun 19 23:30	29°II16'30	
	2780 Jan 18 19:22	30°R8		behind sun end	2786 Jun 20 11:08	29°II18'11	
direct	2780 Feb 07 07:46	29°850'05		max. Earth dist.	2786 Jun 19 23:13	29°II16'28	20.24318 AU
	2780 Feb 26 18:51	0°II			2786 Jul 02 07:13	0°8	
				retrograde	2786 Oct 09 05:14	3°831'10	
conjunction	2780 May 24 07:04	3°II50'09	0°-10'-58	opposition	2786 Dec 23 17:50	1°829'20	0°11'29
minimum elong	2780 May 24 07:04	3°II50'09	0°10'59	min. Earth dist.	2786 Dec 23 22:59	1°828'47	18.20731 AU
behind sun begin	2780 May 24 02:03	3°II49'26			2787 Feb 01 03:35	30°RII	
behind sun end	2780 May 24 12:04	3°II50'51		direct	2787 Mar 08 08:49	29°II28'21	
max. Earth dist.	2780 May 24 13:15	3°II51'01	20.63175 AU		2787 Apr 12 03:09	0°8	
retrograde	2780 Sep 12 11:52	7°II58'32					
opposition	2780 Nov 28 01:19	5°II57'34	0°-10'-20	conjunction	2787 Jun 25 00:07	3°838'11	0°12'00
min. Earth dist.	2780 Nov 27 20:10	5°II58'06	18.60279 AU	minimum elong	2787 Jun 25 00:07	3°838'11	0°12'01
direct	2781 Feb 10 16:39	3°II58'46		behind sun begin	2787 Jun 24 19:34	3°837'31	
				behind sun end	2787 Jun 25 04:39	3°838'50	
conjunction	2781 May 28 20:28	8°II00'05	0°-7'-49	max. Earth dist.	2787 Jun 24 16:36	3°837'05	20.17176 AU
minimum elong	2781 May 28 20:29	8°II00'05	0°07'50	retrograde	2787 Oct 13 21:03	7°852'54	
behind sun begin	2781 May 28 14:27	7°II59'13		opposition	2787 Dec 28 06:37	5°850'53	0°15'06
behind sun end	2781 May 29 02:31	8°II00'56		min. Earth dist.	2787 Dec 28 13:54	5°850'06	18.13581 AU
max. Earth dist.	2781 May 29 00:37	8°II00'39	20.57351 AU	direct	2788 Mar 11 21:32	3°849'27	
retrograde	2781 Sep 17 00:47	12°II09'22					
opposition	2781 Dec 02 10:40	10°II08'18	0°-6'-48	conjunction	2788 Jun 28 19:37	8°800'47	0°15'14
min. Earth dist.	2781 Dec 02 08:08	10°II08'34	18.54326 AU	minimum elong	2788 Jun 28 19:37	8°800'47	0°15'14
direct	2782 Feb 15 00:17	8°II09'13		behind sun begin	2788 Jun 28 17:50	8°800'32	
				behind sun end	2788 Jun 28 21:25	8°801'03	
conjunction	2782 Jun 02 10:55	12°II11'51	0°-4'-36	max. Earth dist.	2788 Jun 28 09:54	7°859'21	20.10040 AU
minimum elong	2782 Jun 02 10:54	12°II11'51	0°04'37	retrograde	2788 Oct 17 14:56	12°816'24	
behind sun begin	2782 Jun 02 04:19	12°II10'55		opposition	2788 Dec 31 19:57	10°814'12	0°18'40
behind sun end	2782 Jun 02 17:29	12°II12'47		min. Earth dist.	2789 Jan 01 04:04	10°813'20	18.06470 AU
max. Earth dist.	2782 Jun 02 13:17	12°II12'10	20.51271 AU	direct	2789 Mar 16 13:05	8°812'19	
retrograde	2782 Sep 21 15:57	16°II22'03					
opposition	2782 Dec 06 20:33	14°II20'53	0°-3'-11	conjunction	2789 Jul 03 16:13	12°825'13	0°18'23
min. Earth dist.	2782 Dec 06 18:50	14°II21'04	18.48101 AU	minimum elong	2789 Jul 03 16:13	12°825'13	0°18'24
direct	2783 Feb 19 10:18	12°II21'30		max. Earth dist.	2789 Jul 03 05:32	12°823'38	20.02956 AU
				retrograde	2789 Oct 22 07:57	16°841'42	
conjunction	2783 Jun 07 02:05	16°II25'30	0°-1'-18	opposition	2790 Jan 05 09:57	14°839'21	0°22'08
minimum elong	2783 Jun 07 02:04	16°II25'30	0°01'19	min. Earth dist.	2790 Jan 05 19:52	14°838'17	17.99449 AU
behind sun begin	2783 Jun 06 19:19	16°II24'32		direct	2790 Mar 21 03:19	12°837'01	
behind sun end	2783 Jun 07 08:48	16°II26'27					
max. Earth dist.	2783 Jun 07 02:17	16°II25'31	20.44893 AU	conjunction	2790 Jul 08 13:29	16°851'29	0°21'28
retrograde	2783 Sep 26 06:00	20°II36'37		minimum elong	2790 Jul 08 13:29	16°851'29	0°21'28
asc. node	2783 Oct 27 08:17	20°II12'40		max. Earth dist.	2790 Jul 08 00:32	16°849'33	19.96018 AU
opposition	2783 Dec 11 07:11	18°II35'19	0°00'27	retrograde	2790 Oct 27 03:14	21°808'50	
min. Earth dist.	2783 Dec 11 08:02	18°II35'13	18.41583 AU	opposition	2791 Jan 10 00:41	19°806'20	0°25'30
direct	2784 Feb 23 20:01	16°II35'35		min. Earth dist.	2791 Jan 10 11:23	19°805'11	17.92611 AU
				direct	2791 Mar 25 19:57	17°803'36	
conjunction	2784 Jun 10 18:17	20°II40'59	0°02'06				
minimum elong	2784 Jun 10 18:17	20°II40'59	0°02'06	conjunction	2791 Jul 13 11:34	21°819'38	0°24'26
behind sun begin	2784 Jun 10 11:33	20°II40'02		minimum elong	2791 Jul 13 11:34	21°819'38	0°24'25
behind sun end	2784 Jun 11 01:02	20°II41'57		max. Earth dist.	2791 Jul 12 22:12	21°817'38	19.89274 AU
max. Earth dist.	2784 Jun 10 16:24	20°II40'46	20.38252 AU	retrograde	2791 Oct 31 22:29	25°837'51	
retrograde	2784 Sep 29 21:50	24°II53'01		opposition	2792 Jan 14 16:15	23°835'16	0°28'44
opposition	2784 Dec 14 18:07	22°II51'33	0°04'08	min. Earth dist.	2792 Jan 15 04:17	23°833'58	17.85990 AU
min. Earth dist.	2784 Dec 14 19:54	22°II51'22	18.34814 AU	direct	2792 Mar 29 11:59	21°832'09	
direct	2785 Feb 27 07:38	20°II51'25					
				conjunction	2792 Jul 17 10:31	25°849'45	0°27'16
conjunction	2785 Jun 15 11:26	24°II58'17	0°05'26	minimum elong	2792 Jul 17 10:31	25°849'45	0°27'16
minimum elong	2785 Jun 15 11:26	24°II58'17	0°05'26	max. Earth dist.	2792 Jul 16 18:49	25°847'23	19.82788 AU
behind sun begin	2785 Jun 15 04:55	24°II57'21			2792 Oct 17 16:52	0°8	
behind sun end	2785 Jun 15 17:56	24°II59'13		retrograde	2792 Nov 04 19:00	0°808'49	
max. Earth dist.	2785 Jun 15 07:33	24°II57'44	20.31365 AU		2792 Nov 22 23:47	30°R8	
retrograde	2785 Oct 04 12:49	29°II11'12		opposition	2793 Jan 18 08:22	28°806'09	0°31'49
opposition	2785 Dec 19 05:47	27°II09'34	0°07'49	min. Earth dist.	2793 Jan 18 21:23	28°804'45	17.79646 AU
min. Earth dist.	2785 Dec 19 10:03	27°II09'07	18.27832 AU	direct	2793 Apr 03 05:26	26°802'41	
direct	2786 Mar 03 19:12	25°II09'01			2793 Jul 16 10:15	0°8	

conjunction	2793 Jul 22 10:33	0°♏21'52	0°29'57	min. Earth dist.	2801 Feb 24 19:22	5°♐16'39	17.38835 AU
minimum elong	2793 Jul 22 10:33	0°♏21'52	0°29'56	direct	2801 May 10 09:05	3°♐13'10	
max. Earth dist.	2793 Jul 21 18:38	0°♏19'28	19.76572 AU	max. Earth dist.	2801 Aug 29 09:08	7°♐38'53	19.36993 AU
retrograde	2793 Nov 09 16:36	4°♏41'45					
opposition	2794 Jan 23 01:26	2°♏39'04	0°34'44	conjunction	2801 Aug 30 09:57	7°♐42'45	0°43'49
min. Earth dist.	2794 Jan 23 15:35	2°♏37'32	17.73568 AU	minimum elong	2801 Aug 30 09:57	7°♐42'45	0°43'48
direct	2794 Apr 07 23:24	0°♏35'17		retrograde	2801 Dec 17 09:21	12°♐07'04	
				opposition	2802 Feb 28 20:45	10°♐04'09	0°49'11
conjunction	2794 Jul 27 11:07	4°♏56'01	0°32'28	min. Earth dist.	2802 Mar 01 17:24	10°♐01'53	17.35345 AU
minimum elong	2794 Jul 27 11:06	4°♏56'01	0°32'28	direct	2802 May 15 11:40	7°♐58'05	
max. Earth dist.	2794 Jul 26 16:46	4°♏53'14	19.70633 AU				
retrograde	2794 Nov 14 14:02	9°♏16'42		conjunction	2802 Sep 04 14:21	12°♐28'30	0°44'20
opposition	2795 Jan 27 19:16	7°♏14'00	0°37'27	minimum elong	2802 Sep 04 14:21	12°♐28'30	0°44'20
min. Earth dist.	2795 Jan 28 10:40	7°♏12'20	17.67773 AU	max. Earth dist.	2802 Sep 03 13:19	12°♐24'35	19.33755 AU
direct	2795 Apr 12 18:14	5°♏09'55		retrograde	2802 Dec 22 08:05	16°♐53'03	
				opposition	2803 Mar 05 20:05	14°♐50'05	0°49'36
conjunction	2795 Aug 01 12:44	9°♏32'10	0°34'48	min. Earth dist.	2803 Mar 06 17:47	14°♐47'42	17.32392 AU
minimum elong	2795 Aug 01 12:44	9°♏32'10	0°34'48	direct	2803 May 20 13:06	12°♐43'49	
max. Earth dist.	2795 Jul 31 18:15	9°♏29'21	19.64957 AU				
retrograde	2795 Nov 19 13:16	13°♏53'35		conjunction	2803 Sep 09 18:52	17°♐14'57	0°44'33
opposition	2796 Feb 01 13:52	11°♏50'53	0°39'57	minimum elong	2803 Sep 09 18:52	17°♐14'57	0°44'32
min. Earth dist.	2796 Feb 02 06:11	11°♏49'06	17.62226 AU	max. Earth dist.	2803 Sep 08 17:50	17°♐11'02	19.31092 AU
direct	2796 Apr 16 14:27	9°♏46'31		retrograde	2803 Dec 27 09:28	21°♐39'38	
				opposition	2804 Mar 09 19:36	19°♐36'41	0°49'40
conjunction	2796 Aug 05 14:59	14°♏10'13	0°36'56	min. Earth dist.	2804 Mar 10 16:13	19°♐34'25	17.30029 AU
minimum elong	2796 Aug 05 14:59	14°♏10'13	0°36'56	direct	2804 May 24 16:41	17°♐30'15	
max. Earth dist.	2796 Aug 04 17:57	14°♏06'59	19.59531 AU				
	2796 Aug 19 05:01	15°♏		conjunction	2804 Sep 13 23:32	22°♐01'59	0°44'27
retrograde	2796 Nov 23 11:11	18°♏32'18		minimum elong	2804 Sep 13 23:32	22°♐01'59	0°44'27
opposition	2797 Feb 05 09:22	16°♏29'34	0°42'13	max. Earth dist.	2804 Sep 12 23:11	21°♐58'10	19.29035 AU
min. Earth dist.	2797 Feb 06 03:15	16°♏27'37	17.56935 AU	retrograde	2804 Dec 31 08:58	26°♐26'43	
	2797 Mar 15 14:05	15°♏		opposition	2805 Mar 14 19:54	24°♐23'49	0°49'24
direct	2797 Apr 21 11:18	14°♏24'53		min. Earth dist.	2805 Mar 15 17:10	24°♐21'29	17.28300 AU
	2797 May 27 22:59	15°♏		direct	2805 May 29 18:20	22°♐17'18	
				max. Earth dist.	2805 Sep 18 03:28	26°♐45'38	19.27642 AU
conjunction	2797 Aug 10 18:02	18°♏49'58	0°38'50				
minimum elong	2797 Aug 10 18:02	18°♏49'58	0°38'51	conjunction	2805 Sep 19 03:55	26°♐49'29	0°44'02
max. Earth dist.	2797 Aug 09 20:47	18°♏46'42	19.54357 AU	minimum elong	2805 Sep 19 03:55	26°♐49'29	0°44'03
retrograde	2797 Nov 28 11:13	23°♏12'39			2805 Nov 14 00:45	0°♏	
opposition	2798 Feb 10 05:31	21°♏09'54	0°44'12	retrograde	2806 Jan 05 11:18	1°♏14'14	
min. Earth dist.	2798 Feb 10 23:53	21°♏07'53	17.51894 AU		2806 Feb 28 20:20	30°♏	
direct	2798 Apr 26 09:47	19°♏04'56		opposition	2806 Mar 19 20:28	29°♐11'25	0°48'47
				min. Earth dist.	2806 Mar 20 16:16	29°♐09'15	17.27238 AU
conjunction	2798 Aug 15 21:27	23°♏31'17	0°40'30	direct	2806 Jun 03 22:26	27°♐04'52	
minimum elong	2798 Aug 15 21:27	23°♏31'17	0°40'29		2806 Aug 29 00:42	0°♏	
max. Earth dist.	2798 Aug 14 22:05	23°♏27'41	19.49461 AU	max. Earth dist.	2806 Sep 23 09:28	1°♏33'48	19.26911 AU
retrograde	2798 Dec 03 09:30	27°♏54'30					
opposition	2799 Feb 15 02:30	25°♏51'42	0°45'55	conjunction	2806 Sep 24 08:22	1°♏37'24	0°43'20
min. Earth dist.	2799 Feb 15 22:23	25°♏49'31	17.47171 AU	minimum elong	2806 Sep 24 08:22	1°♏37'24	0°43'20
direct	2799 May 01 08:23	23°♏46'25		retrograde	2807 Jan 10 11:23	6°♏02'04	
max. Earth dist.	2799 Aug 20 01:50	28°♏10'20	19.44906 AU	opposition	2807 Mar 24 21:31	3°♏59'23	0°47'50
				min. Earth dist.	2807 Mar 25 17:38	3°♏57'11	17.26835 AU
conjunction	2799 Aug 21 01:15	28°♏13'58	0°41'53	direct	2807 Jun 08 23:50	1°♏52'52	
minimum elong	2799 Aug 21 01:15	28°♏13'58	0°41'53				
	2799 Sep 19 06:51	0°♐		conjunction	2807 Sep 29 12:24	6°♏25'37	0°42'19
retrograde	2799 Dec 08 10:03	2°♐37'38		minimum elong	2807 Sep 29 12:24	6°♏25'37	0°42'20
opposition	2800 Feb 20 00:00	0°♐34'47	0°47'20	max. Earth dist.	2807 Sep 28 13:16	6°♏21'58	19.26837 AU
min. Earth dist.	2800 Feb 20 19:48	0°♐32'37	17.42794 AU	retrograde	2808 Jan 15 13:50	10°♏50'08	
	2800 Mar 04 09:38	30°♏		opposition	2808 Mar 28 22:47	8°♏47'35	0°46'32
direct	2800 May 05 08:59	28°♏29'14		min. Earth dist.	2808 Mar 29 17:37	8°♏45'32	17.27061 AU
	2800 Jul 04 07:28	0°♐		direct	2808 Jun 13 04:14	6°♏41'08	
max. Earth dist.	2800 Aug 24 04:42	2°♐54'00	19.40723 AU				
				conjunction	2808 Oct 03 16:27	11°♏13'57	0°41'01
conjunction	2800 Aug 25 05:29	2°♐57'51	0°43'00	minimum elong	2808 Oct 03 16:27	11°♏13'57	0°41'01
minimum elong	2800 Aug 25 05:29	2°♐57'51	0°43'00	max. Earth dist.	2808 Oct 02 19:13	11°♏10'36	19.27351 AU
retrograde	2800 Dec 12 08:24	7°♐21'53		retrograde	2809 Jan 19 13:49	15°♏38'14	
opposition	2801 Feb 23 22:06	5°♐18'59	0°48'25	opposition	2809 Apr 03 00:30	13°♏35'51	0°44'56

min. Earth dist.	2809 Apr 03 19:21	13° <del>2</del> 33'48	17.27852 AU	max. Earth dist.	2816 Nov 10 16:07	19° <del>1</del> 15'51	19.49062 AU
direct	2809 Jun 18 06:41	11° <del>2</del> 29'31		retrograde	2817 Feb 26 06:08	23° <del>1</del> 37'07	
				opposition	2817 May 11 14:48	21° <del>1</del> 35'39	0°22'19
conjunction	2809 Oct 08 19:59	16° <del>2</del> 02'13	0°39'26	min. Earth dist.	2817 May 12 00:02	21° <del>1</del> 34'40	17.51383 AU
minimum elong	2809 Oct 08 19:59	16° <del>2</del> 02'13	0°39'26	direct	2817 Jul 27 17:05	19° <del>1</del> 30'37	
max. Earth dist.	2809 Oct 07 22:28	15° <del>2</del> 58'49	19.28421 AU				
retrograde	2810 Jan 24 15:15	20° <del>2</del> 26'10		conjunction	2817 Nov 16 01:27	23° <del>1</del> 57'10	0°18'23
opposition	2810 Apr 08 02:26	18° <del>2</del> 23'56	0°43'00	minimum elong	2817 Nov 16 01:27	23° <del>1</del> 57'10	0°18'24
min. Earth dist.	2810 Apr 08 20:09	18° <del>2</del> 22'00	17.29186 AU	max. Earth dist.	2817 Nov 15 15:51	23° <del>1</del> 55'40	19.53834 AU
direct	2810 Jun 23 12:02	16° <del>2</del> 17'43		retrograde	2818 Mar 03 02:02	28° <del>1</del> 15'46	
				opposition	2818 May 16 15:34	26° <del>1</del> 14'25	0°18'38
conjunction	2810 Oct 13 23:05	20° <del>2</del> 50'08	0°37'34	min. Earth dist.	2818 May 16 23:49	26° <del>1</del> 13'33	17.56406 AU
minimum elong	2810 Oct 13 23:05	20° <del>2</del> 50'08	0°37'34	direct	2818 Aug 01 17:38	24° <del>1</del> 09'39	
max. Earth dist.	2810 Oct 13 03:41	20° <del>2</del> 47'04	19.30005 AU				
retrograde	2811 Jan 29 14:30	25° <del>2</del> 13'41		conjunction	2818 Nov 20 22:06	28° <del>1</del> 34'57	0°15'03
opposition	2811 Apr 13 04:35	23° <del>2</del> 11'35	0°40'46	minimum elong	2818 Nov 20 22:07	28° <del>1</del> 34'57	0°15'02
min. Earth dist.	2811 Apr 13 21:45	23° <del>2</del> 09'43	17.31002 AU	behind sun begin	2818 Nov 20 19:38	28° <del>1</del> 34'35	
direct	2811 Jun 28 16:13	21° <del>2</del> 05'30		behind sun end	2818 Nov 21 00:36	28° <del>1</del> 35'20	
max. Earth dist.	2811 Oct 18 06:10	25° <del>2</del> 34'25	19.32062 AU	max. Earth dist.	2818 Nov 20 14:23	28° <del>1</del> 33'46	19.59105 AU
					2818 Dec 13 23:15	0° <del>2</del>	
conjunction	2811 Oct 19 01:41	25° <del>2</del> 37'29	0°35'27	retrograde	2819 Mar 07 23:29	2° <del>2</del> 52'41	
minimum elong	2811 Oct 19 01:41	25° <del>2</del> 37'29	0°35'26	opposition	2819 May 21 15:42	0° <del>2</del> 51'30	0°14'52
	2812 Jan 30 06:59	0° <del>1</del>		min. Earth dist.	2819 May 21 21:02	0° <del>2</del> 50'57	17.61896 AU
retrograde	2812 Feb 03 14:19	0° <del>1</del> 00'32			2819 Jun 11 14:16	30° <del>1</del>	
	2812 Feb 07 21:39	30° <del>1</del>		direct	2819 Aug 06 19:45	28° <del>1</del> 47'05	
opposition	2812 Apr 17 06:34	27° <del>2</del> 58'33	0°38'16		2819 Sep 29 16:08	0° <del>2</del>	
min. Earth dist.	2812 Apr 17 22:52	27° <del>2</del> 56'47	17.33291 AU				
direct	2812 Jul 02 21:26	25° <del>2</del> 52'36		conjunction	2819 Nov 25 18:01	3° <del>2</del> 11'05	0°11'39
	2812 Oct 16 19:35	0° <del>1</del>		minimum elong	2819 Nov 25 18:02	3° <del>2</del> 11'05	0°11'39
max. Earth dist.	2812 Oct 22 10:22	0° <del>1</del> 21'16	19.34577 AU	behind sun begin	2819 Nov 25 13:17	3° <del>2</del> 10'21	
				behind sun end	2819 Nov 25 22:46	3° <del>2</del> 11'48	
conjunction	2812 Oct 23 03:49	0° <del>1</del> 24'01	0°33'05	max. Earth dist.	2819 Nov 25 12:44	3° <del>2</del> 10'16	19.64816 AU
minimum elong	2812 Oct 23 03:49	0° <del>1</del> 24'01	0°33'05	retrograde	2820 Mar 11 18:40	7° <del>2</del> 27'55	
retrograde	2813 Feb 07 13:26	4° <del>1</del> 46'28		opposition	2820 May 25 15:27	5° <del>2</del> 26'57	0°11'02
opposition	2813 Apr 22 08:42	2° <del>1</del> 44'37	0°35'29	min. Earth dist.	2820 May 25 19:56	5° <del>2</del> 26'28	17.67815 AU
min. Earth dist.	2813 Apr 22 23:50	2° <del>1</del> 42'59	17.36012 AU	direct	2820 Aug 10 18:54	3° <del>2</del> 22'54	
direct	2813 Jul 08 02:27	0° <del>1</del> 38'50					
				conjunction	2820 Nov 29 12:57	7° <del>2</del> 45'32	0°08'12
conjunction	2813 Oct 28 04:59	5° <del>1</del> 09'30	0°30'30	minimum elong	2820 Nov 29 12:57	7° <del>2</del> 45'32	0°08'12
minimum elong	2813 Oct 28 04:59	5° <del>1</del> 09'30	0°30'29	behind sun begin	2820 Nov 29 07:05	7° <del>2</del> 44'39	
max. Earth dist.	2813 Oct 27 12:03	5° <del>1</del> 06'50	19.37525 AU	behind sun end	2820 Nov 29 18:49	7° <del>2</del> 46'26	
retrograde	2814 Feb 12 11:54	9° <del>1</del> 31'19		max. Earth dist.	2820 Nov 29 09:08	7° <del>2</del> 44'58	19.70937 AU
opposition	2814 Apr 27 10:44	7° <del>1</del> 29'33	0°32'29	retrograde	2821 Mar 16 15:04	12° <del>2</del> 01'29	
min. Earth dist.	2814 Apr 28 01:02	7° <del>1</del> 28'01	17.39185 AU	opposition	2821 May 30 14:43	10° <del>2</del> 00'44	0°07'09
direct	2814 Jul 13 06:23	5° <del>1</del> 23'54		min. Earth dist.	2821 May 30 16:16	10° <del>2</del> 00'35	17.74097 AU
				direct	2821 Aug 15 19:42	7° <del>2</del> 57'07	
conjunction	2814 Nov 02 05:30	9° <del>1</del> 53'44	0°27'42				
minimum elong	2814 Nov 02 05:30	9° <del>1</del> 53'44	0°27'42	conjunction	2821 Dec 04 06:57	12° <del>2</del> 18'21	0°04'43
max. Earth dist.	2814 Nov 01 14:39	9° <del>1</del> 51'24	19.40924 AU	minimum elong	2821 Dec 04 06:57	12° <del>2</del> 18'21	0°04'43
retrograde	2815 Feb 17 10:47	14° <del>1</del> 14'48		behind sun begin	2821 Dec 04 00:30	12° <del>2</del> 17'22	
opposition	2815 May 02 12:18	12° <del>1</del> 13'08	0°29'16	behind sun end	2821 Dec 04 13:24	12° <del>2</del> 19'19	
min. Earth dist.	2815 May 03 00:49	12° <del>1</del> 11'47	17.42790 AU	max. Earth dist.	2821 Dec 04 05:52	12° <del>2</del> 18'12	19.77371 AU
direct	2815 Jul 18 11:02	10° <del>1</del> 07'40		retrograde	2822 Mar 21 09:18	16° <del>2</del> 33'24	
				opposition	2822 Jun 04 13:36	14° <del>2</del> 32'52	0°03'15
conjunction	2815 Nov 07 05:06	14° <del>1</del> 36'30	0°24'44	min. Earth dist.	2822 Jun 04 14:25	14° <del>2</del> 32'47	17.80663 AU
minimum elong	2815 Nov 07 05:06	14° <del>1</del> 36'30	0°24'45	direct	2822 Aug 20 18:10	12° <del>2</del> 29'41	
max. Earth dist.	2815 Nov 06 15:27	14° <del>1</del> 34'22	19.44759 AU				
	2815 Nov 13 10:30	15° <del>1</del>		conjunction	2822 Dec 09 00:04	16° <del>2</del> 49'26	0°01'11
retrograde	2816 Feb 22 07:51	18° <del>1</del> 56'47		minimum elong	2822 Dec 09 00:04	16° <del>2</del> 49'26	0°01'12
opposition	2816 May 06 13:46	16° <del>1</del> 55'13	0°25'52	behind sun begin	2822 Dec 08 17:29	16° <del>2</del> 48'27	
min. Earth dist.	2816 May 07 01:31	16° <del>1</del> 53'57	17.46856 AU	behind sun end	2822 Dec 09 06:38	16° <del>2</del> 50'26	
	2816 Jul 02 18:35	15° <del>1</del>		max. Earth dist.	2822 Dec 09 00:00	16° <del>2</del> 49'26	19.84053 AU
direct	2816 Jul 22 13:15	14° <del>1</del> 49'56		retrograde	2823 Mar 26 04:07	21° <del>2</del> 03'35	
	2816 Aug 11 03:36	15° <del>1</del>		desc. node	2823 Apr 08 14:58	20° <del>2</del> 58'46	
				opposition	2823 Jun 09 11:37	19° <del>2</del> 03'16	0°00'-38
conjunction	2816 Nov 11 03:44	19° <del>1</del> 17'40	0°21'37	min. Earth dist.	2823 Jun 09 09:48	19° <del>2</del> 03'28	17.87432 AU
minimum elong	2816 Nov 11 03:44	19° <del>1</del> 17'40	0°21'37	direct	2823 Aug 25 17:28	17° <del>2</del> 00'30	

conjunction	2823 Dec 13 16:29	21°♂18'48	0°-2'-24	conjunction	2831 Jan 12 09:44	21°♂49'39	0°-24'-42
minimum elong	2823 Dec 13 16:29	21°♂18'48	0°02'25	minimum elong	2831 Jan 12 09:43	21°♂49'39	0°24'43
behind sun begin	2823 Dec 13 09:55	21°♂17'49		max. Earth dist.	2831 Jan 12 21:58	21°♂51'28	20.38469 AU
behind sun end	2823 Dec 13 23:03	21°♂19'47		retrograde	2831 Apr 30 02:14	25°♂56'30	
max. Earth dist.	2823 Dec 13 19:01	21°♂19'08	19.90887 AU	opposition	2831 Jul 15 21:22	23°♂57'07	0°-28'-52
retrograde	2824 Mar 29 20:55	25°♂32'01		min. Earth dist.	2831 Jul 15 07:57	23°♂58'28	18.41749 AU
opposition	2824 Jun 13 09:23	23°♂31'54	0°-4'-30	direct	2831 Sep 30 23:50	21°♂57'08	
min. Earth dist.	2824 Jun 13 06:54	23°♂32'10	17.94318 AU				
direct	2824 Aug 29 15:22	21°♂29'34		conjunction	2832 Jan 16 19:14	26°♂03'06	0°-27'-22
				minimum elong	2832 Jan 16 19:14	26°♂03'06	0°27'23
conjunction	2824 Dec 17 07:45	25°♂46'19	0°-5'-51	max. Earth dist.	2832 Jan 17 10:08	26°♂05'19	20.45021 AU
minimum elong	2824 Dec 17 07:45	25°♂46'19	0°05'52		2832 Apr 14 16:54	0°≈	
behind sun begin	2824 Dec 17 01:28	25°♂45'23		retrograde	2832 May 03 14:00	0°≈09'08	
behind sun end	2824 Dec 17 14:02	25°♂47'15			2832 May 22 19:17	30°♂	
max. Earth dist.	2824 Dec 17 10:57	25°♂46'46	19.97810 AU	opposition	2832 Jul 19 13:15	28°♂09'51	0°-31'-44
retrograde	2825 Apr 03 13:54	29°♂58'38		min. Earth dist.	2832 Jul 18 22:22	28°♂11'21	18.48270 AU
opposition	2825 Jun 18 06:25	27°♂58'41	0°-8'-19	direct	2832 Oct 04 14:49	26°♂10'14	
min. Earth dist.	2825 Jun 18 01:29	27°♂59'12	18.01261 AU		2833 Jan 16 00:39	0°≈	
direct	2825 Sep 03 13:03	25°♂56'45		conjunction	2833 Jan 20 03:45	0°≈14'45	0°-29'-53
	2825 Dec 18 16:15	0°♂		minimum elong	2833 Jan 20 03:45	0°≈14'45	0°29'54
conjunction	2825 Dec 21 22:23	0°♂11'57	0°-9'-14	max. Earth dist.	2833 Jan 20 19:10	0°≈17'03	20.51507 AU
minimum elong	2825 Dec 21 22:24	0°♂11'57	0°09'15	retrograde	2833 May 08 02:01	4°≈20'05	
behind sun begin	2825 Dec 21 16:50	0°♂11'08		opposition	2833 Jul 24 04:26	2°≈20'53	0°-34'-25
behind sun end	2825 Dec 22 03:58	0°♂12'47		min. Earth dist.	2833 Jul 23 12:05	2°≈22'32	18.54723 AU
max. Earth dist.	2825 Dec 22 04:10	0°♂12'49	20.04748 AU	direct	2833 Oct 09 03:25	0°≈21'37	
retrograde	2826 Apr 08 05:15	4°♂23'20		conjunction	2834 Jan 24 11:57	4°≈24'49	0°-32'-13
opposition	2826 Jun 23 02:50	2°♂23'33	0°-12'-3	minimum elong	2834 Jan 24 11:57	4°≈24'49	0°32'14
min. Earth dist.	2826 Jun 22 21:12	2°♂24'08	18.08189 AU	max. Earth dist.	2834 Jan 25 05:49	4°≈27'28	20.57894 AU
direct	2826 Sep 08 09:16	0°♂21'59		retrograde	2834 May 12 13:10	8°≈29'27	
conjunction	2826 Dec 26 11:59	4°♂35'38	0°-12'-33	opposition	2834 Jul 28 18:44	6°≈30'23	0°-36'-54
minimum elong	2826 Dec 26 11:59	4°♂35'38	0°12'34	min. Earth dist.	2834 Jul 28 01:04	6°≈32'09	18.61035 AU
behind sun begin	2826 Dec 26 07:41	4°♂34'59		direct	2834 Oct 13 17:02	4°≈31'29	
behind sun end	2826 Dec 26 16:17	4°♂36'16		conjunction	2835 Jan 28 19:24	8°≈33'25	0°-34'-23
max. Earth dist.	2826 Dec 26 18:06	4°♂36'33	20.11653 AU	minimum elong	2835 Jan 28 19:23	8°≈33'25	0°34'23
retrograde	2827 Apr 12 20:47	8°♂46'05		max. Earth dist.	2835 Jan 29 13:27	8°≈36'05	20.64119 AU
opposition	2827 Jun 27 22:26	6°♂46'25	0°-15'-42	retrograde	2835 May 17 00:20	12°≈37'26	
min. Earth dist.	2827 Jun 27 14:43	6°♂47'12	18.15060 AU	opposition	2835 Aug 02 08:33	10°≈38'29	0°-39'-10
direct	2827 Sep 13 04:49	4°♂45'12		min. Earth dist.	2835 Aug 01 13:59	10°≈40'21	18.67167 AU
conjunction	2827 Dec 31 00:50	8°♂57'16	0°-15'-46	direct	2835 Oct 18 03:35	8°≈39'57	
minimum elong	2827 Dec 31 00:50	8°♂57'16	0°15'47	conjunction	2836 Feb 02 02:26	12°≈40'42	0°-36'-21
behind sun begin	2827 Dec 30 23:14	8°♂57'02		minimum elong	2836 Feb 02 02:26	12°≈40'42	0°36'23
behind sun end	2827 Dec 31 02:27	8°♂57'30		max. Earth dist.	2836 Feb 02 22:38	12°≈43'40	20.70124 AU
max. Earth dist.	2827 Dec 31 09:28	8°♂58'34	20.18474 AU		2836 Mar 15 00:23	15°≈	
retrograde	2828 Apr 16 10:22	13°♂06'47		retrograde	2836 May 20 10:47	16°≈44'07	
opposition	2828 Jul 01 17:23	11°♂07'13	0°-19'-13		2836 Jul 30 18:56	15°♂	
min. Earth dist.	2828 Jul 01 08:48	11°♂08'06	18.21833 AU	opposition	2836 Aug 05 21:45	14°≈45'19	0°-41'-14
direct	2828 Sep 16 23:04	9°♂06'20		min. Earth dist.	2836 Aug 05 01:57	14°≈47'18	18.73034 AU
conjunction	2829 Jan 03 12:39	13°♂16'49	0°-18'-53	direct	2836 Oct 21 16:03	12°≈47'10	
minimum elong	2829 Jan 03 12:39	13°♂16'49	0°18'55		2837 Jan 05 00:21	15°≈	
max. Earth dist.	2829 Jan 03 21:41	13°♂18'11	20.25211 AU	conjunction	2837 Feb 05 08:59	16°≈46'46	0°-38'-8
retrograde	2829 Apr 21 00:49	17°♂25'26		minimum elong	2837 Feb 05 08:59	16°≈46'46	0°38'08
opposition	2829 Jul 06 11:34	15°♂25'55	0°-22'-36	max. Earth dist.	2837 Feb 06 05:06	16°≈49'43	20.75841 AU
min. Earth dist.	2829 Jul 06 01:03	15°♂26'59	18.28537 AU	retrograde	2837 May 24 21:28	20°≈49'41	
direct	2829 Sep 21 16:28	13°♂25'20		opposition	2837 Aug 10 10:25	18°≈50'59	0°-43'-5
conjunction	2830 Jan 07 23:38	17°♂34'16	0°-21'-52	min. Earth dist.	2837 Aug 09 14:16	18°≈53'00	18.78600 AU
minimum elong	2830 Jan 07 23:38	17°♂34'16	0°21'52	direct	2837 Oct 26 01:14	16°≈53'09	
max. Earth dist.	2830 Jan 08 11:23	17°♂36'01	20.31871 AU	conjunction	2838 Feb 09 15:18	20°≈51'43	0°-39'-42
retrograde	2830 Apr 25 13:13	21°♂41'58		minimum elong	2838 Feb 09 15:18	20°≈51'43	0°39'44
opposition	2830 Jul 11 04:57	19°♂42'31	0°-25'-49	max. Earth dist.	2838 Feb 10 13:05	20°≈54'54	20.81215 AU
min. Earth dist.	2830 Jul 10 17:15	19°♂43'43	18.35164 AU	retrograde	2838 May 29 07:15	24°≈54'09	
direct	2830 Sep 26 08:49	17°♂42'15		opposition	2838 Aug 14 22:25	22°≈55'33	0°-44'-43

min. Earth dist.	2838 Aug 14 01:18	22° <del>55</del> '40	18.83770 AU	opposition	2846 Sep 17 03:22	24° <del>55</del> '24	0°-49'-11
direct	2838 Oct 30 12:28	20° <del>55</del> '03		direct	2846 Dec 02 01:56	23° <del>55</del> '01'04	
conjunction	2839 Feb 13 21:12	24° <del>55</del> '36	0°-41'-5	conjunction	2847 Mar 17 11:36	26° <del>55</del> '17	0°-44'-20
minimum elong	2839 Feb 13 21:12	24° <del>55</del> '36	0°41'06	minimum elong	2847 Mar 17 11:36	26° <del>55</del> '17	0°44'21
max. Earth dist.	2839 Feb 14 18:25	24° <del>55</del> '42	20.86163 AU	max. Earth dist.	2847 Mar 18 10:37	26° <del>55</del> '34	21.09321 AU
retrograde	2839 Jun 02 17:20	28° <del>55</del> '37			2847 May 18 16:51	0° <del>55</del> '	
opposition	2839 Aug 19 09:52	26° <del>55</del> '05	0°-46'-6	retrograde	2847 Jul 05 08:31	0° <del>55</del> '33'1	
min. Earth dist.	2839 Aug 18 12:55	27° <del>55</del> '01'10	18.88502 AU		2847 Aug 23 13:33	30° <del>55</del> ' <del>33</del>	
direct	2839 Nov 03 20:44	25° <del>55</del> '01'50		opposition	2847 Sep 21 11:05	28° <del>55</del> '54'39	0°-48'-41
				min. Earth dist.	2847 Sep 20 13:23	28° <del>55</del> '56'49	19.09965 AU
conjunction	2840 Feb 18 02:57	28° <del>55</del> '29	0°-42'-15	direct	2847 Dec 06 06:07	26° <del>55</del> '58'24	
minimum elong	2840 Feb 18 02:57	28° <del>55</del> '29	0°42'16		2848 Mar 05 21:35	0° <del>55</del> '	
max. Earth dist.	2840 Feb 19 01:25	29° <del>55</del> '01'45	20.90651 AU				
	2840 Mar 06 22:11	0° <del>55</del> '		conjunction	2848 Mar 20 16:09	0° <del>55</del> '50'20	0°-43'-47
retrograde	2840 Jun 06 02:14	3° <del>55</del> '00'06		minimum elong	2848 Mar 20 16:09	0° <del>55</del> '50'20	0°43'48
opposition	2840 Aug 22 20:49	1° <del>55</del> '01'35	0°-47'-16	max. Earth dist.	2848 Mar 21 15:59	0° <del>55</del> '53'45	21.10417 AU
min. Earth dist.	2840 Aug 21 23:00	1° <del>55</del> '03'46	18.92739 AU	retrograde	2848 Jul 08 16:50	4° <del>55</del> '50'38	
	2840 Sep 18 22:49	30° <del>55</del> ' <del>38</del>		opposition	2848 Sep 24 18:29	2° <del>55</del> '51'44	0°-47'-57
direct	2840 Nov 07 06:48	29° <del>55</del> '04'35		min. Earth dist.	2848 Sep 23 20:06	2° <del>55</del> '53'59	19.10850 AU
	2840 Dec 24 13:06	0° <del>55</del> '		direct	2848 Dec 09 12:21	0° <del>55</del> '55'34	
conjunction	2841 Feb 21 08:10	3° <del>55</del> '00'20	0°-43'-12	conjunction	2849 Mar 24 20:40	4° <del>55</del> '47'21	0°-43'-1
minimum elong	2841 Feb 21 08:09	3° <del>55</del> '00'20	0°43'13	minimum elong	2849 Mar 24 20:40	4° <del>55</del> '47'21	0°43'02
max. Earth dist.	2841 Feb 22 05:55	3° <del>55</del> '03'30	20.94637 AU	max. Earth dist.	2849 Mar 25 19:21	4° <del>55</del> '50'35	21.11092 AU
retrograde	2841 Jun 10 11:22	7° <del>55</del> '01'37		retrograde	2849 Jul 12 23:45	8° <del>55</del> '47'47	
min. Earth dist.	2841 Aug 26 09:58	5° <del>55</del> '05'12	18.96482 AU	min. Earth dist.	2849 Sep 28 04:46	6° <del>55</del> '50'57	19.11307 AU
opposition	2841 Aug 27 07:19	5° <del>55</del> '03'05	0°-48'-11	opposition	2849 Sep 29 01:50	6° <del>55</del> '48'51	0°-46'-59
direct	2841 Nov 11 14:29	3° <del>55</del> '06'14		direct	2849 Dec 13 16:05	4° <del>55</del> '52'44	
conjunction	2842 Feb 25 13:19	7° <del>55</del> '01'12	0°-43'-56	conjunction	2850 Mar 29 01:42	8° <del>55</del> '44'28	0°-42'-3
minimum elong	2842 Feb 25 13:19	7° <del>55</del> '01'12	0°43'56	minimum elong	2850 Mar 29 01:42	8° <del>55</del> '44'28	0°42'04
max. Earth dist.	2842 Feb 26 12:13	7° <del>55</del> '04'30	20.98132 AU	max. Earth dist.	2850 Mar 30 00:45	8° <del>55</del> '47'45	21.11319 AU
retrograde	2842 Jun 14 19:35	11° <del>55</del> '02'08		retrograde	2850 Jul 17 08:06	12° <del>55</del> '45'04	
opposition	2842 Aug 31 16:55	9° <del>55</del> '03'33	0°-48'-52	min. Earth dist.	2850 Oct 02 11:24	10° <del>55</del> '48'15	19.11283 AU
min. Earth dist.	2842 Aug 30 18:48	9° <del>55</del> '05'46	18.99733 AU	opposition	2850 Oct 03 08:42	10° <del>55</del> '46'07	0°-45'-49
direct	2842 Nov 15 23:10	7° <del>55</del> '06'50		direct	2850 Dec 17 21:53	8° <del>55</del> '50'03	
conjunction	2843 Mar 01 18:01	11° <del>55</del> '01'04	0°-44'-27	conjunction	2851 Apr 02 06:51	12° <del>55</del> '41'48	0°-40'-53
minimum elong	2843 Mar 01 18:01	11° <del>55</del> '01'04	0°44'28	minimum elong	2851 Apr 02 06:51	12° <del>55</del> '41'48	0°40'54
max. Earth dist.	2843 Mar 02 16:14	11° <del>55</del> '04'16	21.01156 AU	max. Earth dist.	2851 Apr 03 04:19	12° <del>55</del> '44'52	21.11043 AU
retrograde	2843 Jun 19 03:06	15° <del>55</del> '01'44		retrograde	2851 Jul 21 15:39	16° <del>55</del> '42'41	
min. Earth dist.	2843 Sep 04 04:45	13° <del>55</del> '05'14	19.02552 AU	opposition	2851 Oct 07 15:49	14° <del>55</del> '43'40	0°-44'-25
opposition	2843 Sep 05 02:18	13° <del>55</del> '03'06	0°-49'-18	min. Earth dist.	2851 Oct 06 20:15	14° <del>55</del> '45'38	19.10746 AU
direct	2843 Nov 20 06:02	11° <del>55</del> '06'29		direct	2851 Dec 22 01:28	12° <del>55</del> '47'37	
conjunction	2844 Mar 04 22:31	15° <del>55</del> '00'04	0°-44'-45	conjunction	2852 Apr 05 12:24	16° <del>55</del> '39'29	0°-39'-31
minimum elong	2844 Mar 04 22:31	15° <del>55</del> '00'04	0°44'45	minimum elong	2852 Apr 05 12:24	16° <del>55</del> '39'29	0°39'33
max. Earth dist.	2844 Mar 05 22:01	15° <del>55</del> '03'27	21.03766 AU	max. Earth dist.	2852 Apr 06 09:54	16° <del>55</del> '42'33	21.10233 AU
retrograde	2844 Jun 22 11:29	19° <del>55</del> '00'31		retrograde	2852 Jul 25 00:25	20° <del>55</del> '40'39	
opposition	2844 Sep 08 11:05	17° <del>55</del> '01'48	0°-49'-30	opposition	2852 Oct 10 22:45	18° <del>55</del> '41'35	0°-42'-48
min. Earth dist.	2844 Sep 07 12:34	17° <del>55</del> '04'03	19.04962 AU	min. Earth dist.	2852 Oct 10 03:12	18° <del>55</del> '43'33	19.09642 AU
direct	2844 Nov 23 13:40	15° <del>55</del> '05'18		direct	2852 Dec 25 07:30	16° <del>55</del> '45'29	
conjunction	2845 Mar 09 02:53	18° <del>55</del> '58'18	0°-44'-49	conjunction	2853 Apr 09 18:23	20° <del>55</del> '37'34	0°-37'-58
minimum elong	2845 Mar 09 02:53	18° <del>55</del> '58'19	0°44'51	minimum elong	2853 Apr 09 18:23	20° <del>55</del> '37'34	0°37'59
max. Earth dist.	2845 Mar 10 01:44	19° <del>55</del> '01'35	21.05986 AU	max. Earth dist.	2853 Apr 10 13:54	20° <del>55</del> '40'21	21.08837 AU
retrograde	2845 Jun 26 17:53	22° <del>55</del> '58'38		retrograde	2853 Jul 29 08:13	24° <del>55</del> '39'05	
opposition	2845 Sep 12 19:28	20° <del>55</del> '59'51	0°-49'-28	opposition	2853 Oct 15 05:40	22° <del>55</del> '39'54	0°-40'-59
min. Earth dist.	2845 Sep 11 21:39	21° <del>55</del> '02'02	19.07010 AU	min. Earth dist.	2853 Oct 14 12:15	22° <del>55</del> '41'39	19.07951 AU
direct	2845 Nov 27 19:04	19° <del>55</del> '03'25		direct	2853 Dec 29 11:12	20° <del>55</del> '43'43	
conjunction	2846 Mar 13 07:21	22° <del>55</del> '55'59	0°-44'-41	conjunction	2854 Apr 14 00:54	24° <del>55</del> '36'05	0°-36'-14
minimum elong	2846 Mar 13 07:21	22° <del>55</del> '55'59	0°44'42	minimum elong	2854 Apr 14 00:54	24° <del>55</del> '36'05	0°36'15
max. Earth dist.	2846 Mar 14 07:15	22° <del>55</del> '59'25	21.07847 AU	max. Earth dist.	2854 Apr 14 20:02	24° <del>55</del> '38'48	21.06856 AU
retrograde	2846 Jul 01 02:19	26° <del>55</del> '56'14		retrograde	2854 Aug 02 17:16	28° <del>55</del> '37'57	
min. Earth dist.	2846 Sep 16 04:43	24° <del>55</del> '59'40	19.08676 AU	opposition	2854 Oct 19 12:27	26° <del>55</del> '38'38	0°-38'-57

min. Earth dist.	2854 Oct 18 19:14	26° $\Upsilon$ 40'22	19.05669 AU	max. Earth dist.	2862 May 17 06:23	26° $\Upsilon$ 50'07	20.75370 AU
direct	2855 Jan 02 17:35	24° $\Upsilon$ 42'19			2862 Jul 18 21:39	0° $\Pi$	
				retrograde	2862 Sep 05 00:37	0° $\Pi$ 55'26	
conjunction	2855 Apr 18 07:27	28° $\Upsilon$ 35'02	0°-34'-18		2862 Oct 24 02:35	30° $\Re$	
minimum elong	2855 Apr 18 07:27	28° $\Upsilon$ 35'02	0°34'20	opposition	2862 Nov 20 21:50	28° $\Upsilon$ 54'49	0°-16'-38
max. Earth dist.	2855 Apr 19 00:35	28° $\Upsilon$ 37'28	21.04301 AU	min. Earth dist.	2862 Nov 20 13:42	28° $\Upsilon$ 55'40	18.72746 AU
	2855 May 13 15:25	0° $\Re$		direct	2863 Feb 03 15:05	26° $\Upsilon$ 56'42	
retrograde	2855 Aug 07 00:57	2° $\Re$ 37'20			2863 May 05 04:54	0° $\Pi$	
opposition	2855 Oct 23 19:23	0° $\Re$ 37'50	0°-36'-44				
min. Earth dist.	2855 Oct 23 04:17	0° $\Re$ 39'22	19.02853 AU	conjunction	2863 May 21 08:22	0° $\Pi$ 55'32	0°-13'-34
	2855 Nov 08 15:56	30° $\Re$ $\Upsilon$		minimum elong	2863 May 21 08:22	0° $\Pi$ 55'32	0°13'35
direct	2856 Jan 06 21:35	28° $\Upsilon$ 41'20		behind sun begin	2863 May 21 04:46	0° $\Pi$ 55'01	
	2856 Mar 03 13:24	0° $\Re$		behind sun end	2863 May 21 11:57	0° $\Pi$ 56'02	
				max. Earth dist.	2863 May 21 15:43	0° $\Pi$ 56'34	20.70076 AU
conjunction	2856 Apr 21 14:41	2° $\Re$ 34'29	0°-32'-12	retrograde	2863 Sep 09 11:45	5° $\Pi$ 03'00	
minimum elong	2856 Apr 21 14:41	2° $\Re$ 34'29	0°32'14	opposition	2863 Nov 25 06:22	3° $\Pi$ 02'17	0°-13'-15
max. Earth dist.	2856 Apr 22 07:33	2° $\Re$ 36'53	21.01251 AU	min. Earth dist.	2863 Nov 25 00:39	3° $\Pi$ 02'53	18.67318 AU
retrograde	2856 Aug 10 10:30	6° $\Re$ 37'14		direct	2864 Feb 07 21:08	1° $\Pi$ 03'55	
min. Earth dist.	2856 Oct 26 11:07	4° $\Re$ 39'05	18.99567 AU				
opposition	2856 Oct 27 02:05	4° $\Re$ 37'33	0°-34'-20	conjunction	2864 May 24 20:53	5° $\Pi$ 03'54	0°-10'-28
direct	2857 Jan 10 04:02	2° $\Re$ 40'51		minimum elong	2864 May 24 20:53	5° $\Pi$ 03'54	0°10'30
				behind sun begin	2864 May 24 15:41	5° $\Pi$ 03'10	
conjunction	2857 Apr 25 22:11	6° $\Re$ 34'32	0°-29'-57	behind sun end	2864 May 25 02:05	5° $\Pi$ 04'38	
minimum elong	2857 Apr 25 22:11	6° $\Re$ 34'32	0°29'59	max. Earth dist.	2864 May 25 03:07	5° $\Pi$ 04'48	20.64519 AU
max. Earth dist.	2857 Apr 26 13:06	6° $\Re$ 36'39	20.97755 AU	retrograde	2864 Sep 13 02:33	9° $\Pi$ 12'14	
retrograde	2857 Aug 14 18:33	10° $\Re$ 37'49		opposition	2864 Nov 28 15:05	7° $\Pi$ 11'25	0°-9'-46
opposition	2857 Oct 31 09:00	8° $\Re$ 37'56	0°-31'-45	min. Earth dist.	2864 Nov 28 10:00	7° $\Pi$ 11'56	18.61608 AU
min. Earth dist.	2857 Oct 30 20:09	8° $\Re$ 39'15	18.95874 AU	direct	2865 Feb 11 06:20	5° $\Pi$ 12'45	
direct	2858 Jan 14 08:24	6° $\Re$ 41'00					
				conjunction	2865 May 29 10:18	9° $\Pi$ 13'59	0°-7'-18
conjunction	2858 Apr 30 06:23	10° $\Re$ 35'19	0°-27'-32	minimum elong	2865 May 29 10:18	9° $\Pi$ 13'59	0°07'19
minimum elong	2858 Apr 30 06:23	10° $\Re$ 35'19	0°27'32	behind sun begin	2865 May 29 04:09	9° $\Pi$ 13'07	
max. Earth dist.	2858 Apr 30 20:55	10° $\Re$ 37'23	20.93881 AU	behind sun end	2865 May 29 16:27	9° $\Pi$ 14'51	
retrograde	2858 Aug 19 04:48	14° $\Re$ 39'09		max. Earth dist.	2865 May 29 14:09	9° $\Pi$ 14'31	20.58647 AU
opposition	2858 Nov 04 15:45	12° $\Re$ 39'06	0°-29'-1	retrograde	2865 Sep 17 14:31	13° $\Pi$ 23'11	
min. Earth dist.	2858 Nov 04 03:00	12° $\Re$ 40'24	18.91820 AU	opposition	2865 Dec 03 00:34	11° $\Pi$ 22'14	0°-6'-13
direct	2859 Jan 18 14:39	10° $\Re$ 41'55		min. Earth dist.	2865 Dec 02 22:11	11° $\Pi$ 22'29	18.55576 AU
				direct	2866 Feb 15 13:35	9° $\Pi$ 23'16	
conjunction	2859 May 04 14:57	14° $\Re$ 36'58	0°-24'-59				
minimum elong	2859 May 04 14:57	14° $\Re$ 36'58	0°25'00	conjunction	2866 Jun 03 00:37	13° $\Pi$ 25'47	0°-4'-4
max. Earth dist.	2859 May 05 03:33	14° $\Re$ 38'46	20.89668 AU	minimum elong	2866 Jun 03 00:37	13° $\Pi$ 25'47	0°04'05
	2859 May 11 07:55	15° $\Re$		behind sun begin	2866 Jun 02 17:59	13° $\Pi$ 24'50	
retrograde	2859 Aug 23 13:54	18° $\Re$ 41'26		behind sun end	2866 Jun 03 07:15	13° $\Pi$ 26'43	
opposition	2859 Nov 08 22:58	16° $\Re$ 41'13	0°-26'-7	max. Earth dist.	2866 Jun 03 02:48	13° $\Pi$ 26'03	20.52458 AU
min. Earth dist.	2859 Nov 08 12:16	16° $\Re$ 42'19	18.87459 AU	retrograde	2866 Sep 22 06:11	17° $\Pi$ 35'51	
	2859 Dec 28 12:58	15° $\Re$ $\Re$		opposition	2866 Dec 07 10:21	15° $\Pi$ 34'44	0°-2'-35
direct	2860 Jan 22 19:30	14° $\Re$ 43'48		min. Earth dist.	2866 Dec 07 08:47	15° $\Pi$ 34'54	18.49220 AU
	2860 Feb 16 19:08	15° $\Re$		direct	2867 Feb 20 00:42	13° $\Pi$ 35'25	
conjunction	2860 May 08 00:12	18° $\Re$ 39'39	0°-22'-18	conjunction	2867 Jun 07 15:45	17° $\Pi$ 39'15	0°00'-44
minimum elong	2860 May 08 00:12	18° $\Re$ 39'39	0°22'18	minimum elong	2867 Jun 07 15:46	17° $\Pi$ 39'15	0°00'45
max. Earth dist.	2860 May 08 12:21	18° $\Re$ 41'23	20.85172 AU	behind sun begin	2867 Jun 07 09:02	17° $\Pi$ 38'18	
retrograde	2860 Aug 27 01:18	22° $\Re$ 44'48		behind sun end	2867 Jun 07 22:29	17° $\Pi$ 40'12	
opposition	2860 Nov 12 06:16	20° $\Re$ 44'26	0°-23'-5	max. Earth dist.	2867 Jun 07 15:35	17° $\Pi$ 39'14	20.45945 AU
min. Earth dist.	2860 Nov 11 19:39	20° $\Re$ 45'32	18.82816 AU	asc. node	2867 Aug 27 14:43	21° $\Pi$ 27'16	
direct	2861 Jan 26 02:04	18° $\Re$ 46'47		retrograde	2867 Sep 26 18:55	21° $\Pi$ 50'11	
				opposition	2867 Dec 11 20:51	19° $\Pi$ 48'54	0°01'03
conjunction	2861 May 12 10:11	22° $\Re$ 43'32	0°-19'-30	min. Earth dist.	2867 Dec 11 21:57	19° $\Pi$ 48'47	18.42567 AU
minimum elong	2861 May 12 10:11	22° $\Re$ 43'32	0°19'31	direct	2868 Feb 24 09:32	17° $\Pi$ 49'11	
max. Earth dist.	2861 May 12 20:18	22° $\Re$ 44'59	20.80395 AU				
retrograde	2861 Aug 31 11:37	26° $\Re$ 49'24		conjunction	2868 Jun 11 07:47	21° $\Pi$ 54'22	0°02'40
opposition	2861 Nov 16 13:54	24° $\Re$ 48'55	0°-19'-55	minimum elong	2868 Jun 11 07:46	21° $\Pi$ 54'22	0°02'40
min. Earth dist.	2861 Nov 16 05:30	24° $\Re$ 49'47	18.77909 AU	behind sun begin	2868 Jun 11 01:03	21° $\Pi$ 53'25	
direct	2862 Jan 30 07:25	22° $\Re$ 51'01		behind sun end	2868 Jun 11 14:30	21° $\Pi$ 55'20	
				max. Earth dist.	2868 Jun 11 05:45	21° $\Pi$ 54'08	20.39175 AU
conjunction	2862 May 16 21:00	26° $\Re$ 48'47	0°-16'-35	retrograde	2868 Sep 30 11:13	26° $\Pi$ 06'11	
minimum elong	2862 May 16 21:00	26° $\Re$ 48'47	0°16'36	opposition	2868 Dec 15 07:42	24° $\Pi$ 04'42	0°04'44

min. Earth dist.	2868 Dec 15 09:38	24° $\Pi$ 04'30	18.35678 AU	conjunction	2876 Jul 17 22:33	26° $\mathfrak{D}$ 58'49	0°27'42
direct	2869 Feb 27 22:23	22° $\Pi$ 04'33		minimum elong	2876 Jul 17 22:33	26° $\mathfrak{D}$ 58'49	0°27'42
				max. Earth dist.	2876 Jul 17 06:59	26° $\mathfrak{D}$ 56'28	19.83733 AU
conjunction	2869 Jun 16 00:42	26° $\Pi$ 11'09	0°05'59		2876 Sep 10 22:38	0° $\Omega$	
minimum elong	2869 Jun 16 00:42	26° $\Pi$ 11'09	0°05'59	retrograde	2876 Nov 05 07:11	1° $\Omega$ 17'46	
behind sun begin	2869 Jun 15 18:16	26° $\Pi$ 10'14			2877 Jan 01 04:48	30° $\mathfrak{R}$ $\mathfrak{D}$	
behind sun end	2869 Jun 16 07:07	26° $\Pi$ 12'04		opposition	2877 Jan 18 20:50	29° $\mathfrak{D}$ 15'10	0°32'18
max. Earth dist.	2869 Jun 15 20:37	26° $\Pi$ 10'35	20.32185 AU	min. Earth dist.	2877 Jan 19 09:40	29° $\mathfrak{D}$ 13'47	17.80588 AU
	2869 Sep 04 10:46	0° $\mathfrak{D}$		direct	2877 Apr 03 18:07	27° $\mathfrak{D}$ 11'47	
retrograde	2869 Oct 05 00:51	0° $\mathfrak{D}$ 23'50			2877 Jun 27 11:27	0° $\Omega$	
	2869 Nov 04 21:29	30° $\mathfrak{R}$ $\Pi$					
opposition	2869 Dec 19 19:06	28° $\Pi$ 22'08	0°08'25	conjunction	2877 Jul 22 22:30	1° $\Omega$ 30'51	0°30'22
min. Earth dist.	2869 Dec 19 23:33	28° $\Pi$ 21'40	18.28617 AU	minimum elong	2877 Jul 22 22:30	1° $\Omega$ 30'51	0°30'23
direct	2870 Mar 04 08:56	26° $\Pi$ 21'32		max. Earth dist.	2877 Jul 22 06:31	1° $\Omega$ 28'26	19.77496 AU
	2870 Jun 12 09:40	0° $\mathfrak{D}$		retrograde	2877 Nov 10 03:58	5° $\Omega$ 50'39	
				opposition	2878 Jan 23 13:47	3° $\Omega$ 48'03	0°35'11
conjunction	2870 Jun 20 18:24	0° $\mathfrak{D}$ 29'35	0°09'16	min. Earth dist.	2878 Jan 24 04:05	3° $\Omega$ 46'30	17.74460 AU
minimum elong	2870 Jun 20 18:24	0° $\mathfrak{D}$ 29'35	0°09'17	direct	2878 Apr 08 11:47	1° $\Omega$ 44'22	
behind sun begin	2870 Jun 20 12:45	0° $\mathfrak{D}$ 28'46					
behind sun end	2870 Jun 21 00:03	0° $\mathfrak{D}$ 30'24		conjunction	2878 Jul 27 23:08	6° $\Omega$ 05'00	0°32'52
max. Earth dist.	2870 Jun 20 12:26	0° $\mathfrak{D}$ 28'44	20.25082 AU	minimum elong	2878 Jul 27 23:07	6° $\Omega$ 05'00	0°32'52
retrograde	2870 Oct 09 18:00	4° $\mathfrak{D}$ 43'09		max. Earth dist.	2878 Jul 27 04:34	6° $\Omega$ 02'11	19.71477 AU
opposition	2870 Dec 24 07:03	2° $\mathfrak{D}$ 41'15	0°12'05	retrograde	2878 Nov 15 02:26	10° $\Omega$ 25'38	
min. Earth dist.	2870 Dec 24 12:11	2° $\mathfrak{D}$ 40'42	18.21480 AU	opposition	2879 Jan 28 07:36	8° $\Omega$ 23'00	0°37'53
direct	2871 Mar 08 22:45	0° $\mathfrak{D}$ 40'12		min. Earth dist.	2879 Jan 28 23:05	8° $\Omega$ 21'19	17.68555 AU
				direct	2879 Apr 13 06:59	6° $\Omega$ 19'00	
conjunction	2871 Jun 25 12:48	4° $\mathfrak{D}$ 49'44	0°12'32	max. Earth dist.	2879 Aug 01 05:47	10° $\Omega$ 38'17	19.65659 AU
minimum elong	2871 Jun 25 12:48	4° $\mathfrak{D}$ 49'44	0°12'32				
behind sun begin	2871 Jun 25 08:33	4° $\mathfrak{D}$ 49'07		conjunction	2879 Aug 02 00:38	10° $\Omega$ 41'10	0°35'11
behind sun end	2871 Jun 25 17:03	4° $\mathfrak{D}$ 50'21		minimum elong	2879 Aug 02 00:38	10° $\Omega$ 41'10	0°35'11
max. Earth dist.	2871 Jun 25 05:23	4° $\mathfrak{D}$ 48'39	20.17920 AU		2879 Nov 10 09:00	15° $\Omega$	
retrograde	2871 Oct 14 09:15	9° $\mathfrak{D}$ 04'12		retrograde	2879 Nov 20 00:51	15° $\Omega$ 02'32	
opposition	2871 Dec 28 19:43	7° $\mathfrak{D}$ 02'06	0°15'41		2879 Nov 29 16:32	15° $\mathfrak{R}$ $\Omega$	
min. Earth dist.	2871 Dec 29 03:00	7° $\mathfrak{D}$ 01'20	18.14327 AU	opposition	2880 Feb 02 02:15	12° $\Omega$ 59'53	0°40'21
direct	2872 Mar 12 11:11	5° $\mathfrak{D}$ 00'37		min. Earth dist.	2880 Feb 02 18:51	12° $\Omega$ 58'04	17.62839 AU
				direct	2880 Apr 17 02:45	10° $\Omega$ 55'34	
conjunction	2872 Jun 29 08:12	9° $\mathfrak{D}$ 11'40	0°15'45		2880 Jul 31 21:48	15° $\Omega$	
minimum elong	2872 Jun 29 08:12	9° $\mathfrak{D}$ 11'40	0°15'45	max. Earth dist.	2880 Aug 05 05:20	15° $\Omega$ 15'53	19.60049 AU
max. Earth dist.	2872 Jun 28 22:47	9° $\mathfrak{D}$ 10'17	20.10796 AU				
retrograde	2872 Oct 18 03:13	13° $\mathfrak{D}$ 27'02		conjunction	2880 Aug 06 02:51	15° $\Omega$ 19'11	0°37'16
opposition	2873 Jan 01 08:46	11° $\mathfrak{D}$ 24'46	0°19'14	minimum elong	2880 Aug 06 02:50	15° $\Omega$ 19'11	0°37'17
min. Earth dist.	2873 Jan 01 16:43	11° $\mathfrak{D}$ 23'55	18.07243 AU	retrograde	2880 Nov 23 23:52	19° $\Omega$ 41'14	
direct	2873 Mar 17 01:56	9° $\mathfrak{D}$ 22'49		opposition	2881 Feb 05 21:34	17° $\Omega$ 38'32	0°42'34
				min. Earth dist.	2881 Feb 06 15:36	17° $\Omega$ 36'34	17.57356 AU
conjunction	2873 Jul 04 04:35	13° $\mathfrak{D}$ 35'28	0°18'54	direct	2881 Apr 21 23:25	15° $\Omega$ 33'52	
minimum elong	2873 Jul 04 04:35	13° $\mathfrak{D}$ 35'27	0°18'53	max. Earth dist.	2881 Aug 10 08:10	19° $\Omega$ 55'33	19.54685 AU
max. Earth dist.	2873 Jul 03 18:04	13° $\mathfrak{D}$ 33'54	20.03751 AU				
retrograde	2873 Oct 22 20:22	17° $\mathfrak{D}$ 51'43		conjunction	2881 Aug 11 05:48	19° $\Omega$ 58'53	0°39'08
opposition	2874 Jan 05 22:45	15° $\mathfrak{D}$ 49'19	0°22'41	minimum elong	2881 Aug 11 05:48	19° $\Omega$ 58'53	0°39'08
min. Earth dist.	2874 Jan 06 08:31	15° $\mathfrak{D}$ 48'16	18.00273 AU	retrograde	2881 Nov 28 23:07	24° $\Omega$ 21'31	
direct	2874 Mar 21 16:16	13° $\mathfrak{D}$ 46'58		opposition	2882 Feb 10 17:41	22° $\Omega$ 18'46	0°44'31
				min. Earth dist.	2882 Feb 11 12:17	22° $\Omega$ 16'44	17.52131 AU
conjunction	2874 Jul 09 01:33	18° $\mathfrak{D}$ 01'11	0°21'57	direct	2882 Apr 26 21:47	20° $\Omega$ 13'48	
minimum elong	2874 Jul 09 01:33	18° $\mathfrak{D}$ 01'11	0°21'56	max. Earth dist.	2882 Aug 15 09:13	24° $\Omega$ 36'24	19.49616 AU
max. Earth dist.	2874 Jul 08 12:58	17° $\mathfrak{D}$ 59'18	19.96869 AU				
retrograde	2874 Oct 27 15:24	22° $\mathfrak{D}$ 18'21		conjunction	2882 Aug 16 08:53	24° $\Omega$ 40'03	0°40'45
opposition	2875 Jan 10 13:20	20° $\mathfrak{D}$ 15'50	0°26'02	minimum elong	2882 Aug 16 08:53	24° $\Omega$ 40'03	0°40'46
min. Earth dist.	2875 Jan 10 23:41	20° $\mathfrak{D}$ 14'43	17.93492 AU	retrograde	2882 Dec 03 21:40	29° $\Omega$ 03'15	
direct	2875 Mar 26 08:25	18° $\mathfrak{D}$ 13'07		opposition	2883 Feb 15 14:31	27° $\Omega$ 00'24	0°46'12
				min. Earth dist.	2883 Feb 16 10:28	26° $\Omega$ 58'13	17.47247 AU
conjunction	2875 Jul 13 23:39	22° $\mathfrak{D}$ 28'56	0°24'53	direct	2883 May 01 19:51	24° $\Omega$ 55'07	
minimum elong	2875 Jul 13 23:39	22° $\mathfrak{D}$ 28'56	0°24'53				
max. Earth dist.	2875 Jul 13 10:26	22° $\mathfrak{D}$ 26'58	19.90183 AU	conjunction	2883 Aug 21 12:41	29° $\Omega$ 22'34	0°42'06
retrograde	2875 Nov 01 10:19	26° $\mathfrak{D}$ 47'00		minimum elong	2883 Aug 21 12:41	29° $\Omega$ 22'34	0°42'06
opposition	2876 Jan 15 04:42	24° $\mathfrak{D}$ 44'26	0°29'15	max. Earth dist.	2883 Aug 20 13:10	29° $\Omega$ 18'55	19.44917 AU
min. Earth dist.	2876 Jan 15 16:38	24° $\mathfrak{D}$ 43'09	17.86921 AU		2883 Aug 31 14:42	0° $\mathfrak{R}$ $\mathfrak{p}$	
direct	2876 Mar 30 00:20	22° $\mathfrak{D}$ 41'23		retrograde	2883 Dec 08 21:28	3° $\mathfrak{R}$ $\mathfrak{p}$ 46'12	

opposition	2884 Feb 20 11:45	1° $\mathring{M}$ 43'17	0°47'33	max. Earth dist.	2891 Sep 29 00:37	7° $\mathring{A}$ 29'19	19.27019 AU
min. Earth dist.	2884 Feb 21 07:44	1° $\mathring{M}$ 41'05	17.42749 AU	retrograde	2892 Jan 16 00:44	11° $\mathring{A}$ 57'29	
	2884 Apr 06 16:51	30° $\mathring{R}$ $\mathring{A}$		opposition	2892 Mar 29 10:21	9° $\mathring{A}$ 54'58	0°46'26
direct	2884 May 05 20:48	29° $\mathring{A}$ 37'41		min. Earth dist.	2892 Mar 30 05:13	9° $\mathring{A}$ 52'54	17.27228 AU
	2884 Jun 03 19:11	0° $\mathring{M}$		direct	2892 Jun 13 15:43	7° $\mathring{A}$ 48'33	
				max. Earth dist.	2892 Oct 03 06:30	12° $\mathring{A}$ 18'00	19.27490 AU
conjunction	2884 Aug 25 16:45	4° $\mathring{M}$ 06'13	0°43'11				
minimum elong	2884 Aug 25 16:45	4° $\mathring{M}$ 06'13	0°43'11	conjunction	2892 Oct 04 03:46	12° $\mathring{A}$ 21'21	0°40'54
max. Earth dist.	2884 Aug 24 15:51	4° $\mathring{M}$ 02'21	19.40636 AU	minimum elong	2892 Oct 04 03:46	12° $\mathring{A}$ 21'21	0°40'54
retrograde	2884 Dec 12 19:55	8° $\mathring{M}$ 30'13		retrograde	2893 Jan 20 01:34	16° $\mathring{A}$ 45'39	
opposition	2885 Feb 24 09:49	6° $\mathring{M}$ 27'14	0°48'36	opposition	2893 Apr 03 12:14	14° $\mathring{A}$ 43'18	0°44'46
min. Earth dist.	2885 Feb 25 07:03	6° $\mathring{M}$ 24'55	17.38716 AU	min. Earth dist.	2893 Apr 04 07:19	14° $\mathring{A}$ 41'13	17.27951 AU
direct	2885 May 10 20:38	4° $\mathring{M}$ 21'21		direct	2893 Jun 18 19:00	12° $\mathring{A}$ 36'59	
				max. Earth dist.	2893 Oct 08 09:41	17° $\mathring{A}$ 06'15	19.28467 AU
conjunction	2885 Aug 30 20:59	8° $\mathring{M}$ 50'50	0°43'57				
minimum elong	2885 Aug 30 20:59	8° $\mathring{M}$ 50'50	0°43'58	conjunction	2893 Oct 09 07:17	17° $\mathring{A}$ 09'40	0°39'16
max. Earth dist.	2885 Aug 29 20:24	8° $\mathring{M}$ 47'01	19.36853 AU	minimum elong	2893 Oct 09 07:17	17° $\mathring{A}$ 09'40	0°39'16
retrograde	2885 Dec 17 20:23	13° $\mathring{M}$ 15'08		retrograde	2894 Jan 25 02:29	21° $\mathring{A}$ 33'41	
opposition	2886 Mar 01 08:21	11° $\mathring{M}$ 12'07	0°49'19	opposition	2894 Apr 08 14:12	19° $\mathring{A}$ 31'27	0°42'48
min. Earth dist.	2886 Mar 02 04:55	11° $\mathring{M}$ 09'51	17.35200 AU	min. Earth dist.	2894 Apr 09 08:03	19° $\mathring{A}$ 29'30	17.29171 AU
direct	2886 May 15 23:33	9° $\mathring{M}$ 05'59		direct	2894 Jun 23 23:16	17° $\mathring{A}$ 25'14	
max. Earth dist.	2886 Sep 04 00:27	13° $\mathring{M}$ 32'25	19.33618 AU				
				conjunction	2894 Oct 14 10:38	21° $\mathring{A}$ 57'40	0°37'22
conjunction	2886 Sep 05 01:21	13° $\mathring{M}$ 36'18	0°44'26	minimum elong	2894 Oct 14 10:38	21° $\mathring{A}$ 57'40	0°37'22
minimum elong	2886 Sep 05 01:21	13° $\mathring{M}$ 36'18	0°44'25	max. Earth dist.	2894 Oct 13 15:01	21° $\mathring{A}$ 54'35	19.29919 AU
retrograde	2886 Dec 22 19:14	18° $\mathring{M}$ 00'49		retrograde	2895 Jan 30 03:00	26° $\mathring{A}$ 21'16	
opposition	2887 Mar 06 07:31	15° $\mathring{M}$ 57'47	0°49'41	opposition	2895 Apr 13 16:15	24° $\mathring{A}$ 19'10	0°40'32
min. Earth dist.	2887 Mar 07 05:00	15° $\mathring{M}$ 55'25	17.32281 AU	min. Earth dist.	2895 Apr 14 09:48	24° $\mathring{A}$ 17'16	17.30846 AU
direct	2887 May 21 00:12	13° $\mathring{M}$ 51'27		direct	2895 Jun 29 03:45	22° $\mathring{A}$ 13'05	
max. Earth dist.	2887 Sep 09 05:09	18° $\mathring{M}$ 18'38	19.31012 AU				
				conjunction	2895 Oct 19 13:19	26° $\mathring{A}$ 45'07	0°35'13
conjunction	2887 Sep 10 05:48	18° $\mathring{M}$ 22'30	0°44'36	minimum elong	2895 Oct 19 13:19	26° $\mathring{A}$ 45'07	0°35'13
minimum elong	2887 Sep 10 05:48	18° $\mathring{M}$ 22'30	0°44'37	max. Earth dist.	2895 Oct 18 17:29	26° $\mathring{A}$ 41'59	19.31828 AU
retrograde	2887 Dec 27 20:47	22° $\mathring{M}$ 47'09			2895 Dec 16 00:00	0° $\mathring{M}$	
opposition	2888 Mar 10 07:09	20° $\mathring{M}$ 44'09	0°49'43	retrograde	2896 Feb 04 02:19	1° $\mathring{M}$ 08'14	
min. Earth dist.	2888 Mar 11 03:26	20° $\mathring{M}$ 41'55	17.29989 AU		2896 Mar 27 07:12	30° $\mathring{R}$ $\mathring{A}$	
direct	2888 May 25 04:01	18° $\mathring{M}$ 37'41		opposition	2896 Apr 17 18:22	29° $\mathring{A}$ 06'14	0°37'59
max. Earth dist.	2888 Sep 13 10:20	23° $\mathring{M}$ 05'34	19.29043 AU	min. Earth dist.	2896 Apr 18 10:51	29° $\mathring{A}$ 04'27	17.32980 AU
				direct	2896 Jul 03 08:19	27° $\mathring{A}$ 00'16	
conjunction	2888 Sep 14 10:26	23° $\mathring{M}$ 09'20	0°44'28		2896 Sep 28 23:02	0° $\mathring{M}$	
minimum elong	2888 Sep 14 10:26	23° $\mathring{M}$ 09'20	0°44'28				
retrograde	2888 Dec 31 20:28	27° $\mathring{M}$ 34'04		conjunction	2896 Oct 23 15:26	1° $\mathring{M}$ 31'46	0°32'49
opposition	2889 Mar 15 07:21	25° $\mathring{M}$ 31'08	0°49'24	minimum elong	2896 Oct 23 15:26	1° $\mathring{M}$ 31'46	0°32'48
min. Earth dist.	2889 Mar 16 04:20	25° $\mathring{M}$ 28'50	17.28356 AU	max. Earth dist.	2896 Oct 22 21:48	1° $\mathring{M}$ 28'59	19.34187 AU
direct	2889 May 30 05:24	23° $\mathring{M}$ 24'37		retrograde	2897 Feb 08 01:51	5° $\mathring{M}$ 54'18	
				opposition	2897 Apr 22 20:28	3° $\mathring{M}$ 52'25	0°35'11
conjunction	2889 Sep 19 14:55	27° $\mathring{M}$ 56'46	0°44'02	min. Earth dist.	2897 Apr 23 11:57	3° $\mathring{M}$ 50'45	17.35552 AU
minimum elong	2889 Sep 19 14:55	27° $\mathring{M}$ 56'46	0°44'02	direct	2897 Jul 08 13:55	1° $\mathring{M}$ 46'37	
max. Earth dist.	2889 Sep 18 14:55	27° $\mathring{M}$ 52'59	19.27749 AU				
	2889 Oct 23 10:25	0° $\mathring{A}$		conjunction	2897 Oct 28 16:42	6° $\mathring{M}$ 17'23	0°30'11
retrograde	2890 Jan 05 22:27	2° $\mathring{A}$ 21'31		minimum elong	2897 Oct 28 16:42	6° $\mathring{M}$ 17'23	0°30'12
opposition	2890 Mar 20 07:57	0° $\mathring{A}$ 18'42	0°48'45	max. Earth dist.	2897 Oct 27 23:29	6° $\mathring{M}$ 14'40	19.37001 AU
min. Earth dist.	2890 Mar 21 03:31	0° $\mathring{A}$ 16'33	17.27381 AU	retrograde	2898 Feb 12 23:51	10° $\mathring{M}$ 39'17	
	2890 Mar 27 11:16	30° $\mathring{R}$ $\mathring{M}$		opposition	2898 Apr 27 22:24	8° $\mathring{M}$ 37'29	0°32'08
direct	2890 Jun 04 09:19	28° $\mathring{M}$ 12'10		min. Earth dist.	2898 Apr 28 12:51	8° $\mathring{M}$ 35'56	17.38606 AU
	2890 Aug 09 02:34	0° $\mathring{A}$		direct	2898 Jul 13 17:49	6° $\mathring{M}$ 31'49	
conjunction	2890 Sep 24 19:18	2° $\mathring{A}$ 44'40	0°43'17	conjunction	2898 Nov 02 17:09	11° $\mathring{M}$ 01'46	0°27'22
minimum elong	2890 Sep 24 19:18	2° $\mathring{A}$ 44'40	0°43'18	minimum elong	2898 Nov 02 17:10	11° $\mathring{M}$ 01'46	0°27'22
max. Earth dist.	2890 Sep 23 20:39	2° $\mathring{A}$ 41'06	19.27085 AU	max. Earth dist.	2898 Nov 02 02:15	10° $\mathring{M}$ 59'25	19.40298 AU
retrograde	2891 Jan 10 22:58	7° $\mathring{A}$ 09'22			2899 Jan 20 06:19	15° $\mathring{M}$	
opposition	2891 Mar 25 09:06	5° $\mathring{A}$ 06'42	0°47'45	retrograde	2899 Feb 17 22:33	15° $\mathring{M}$ 22'57	
min. Earth dist.	2891 Mar 26 05:12	5° $\mathring{A}$ 04'30	17.27019 AU		2899 Mar 19 06:14	15° $\mathring{R}$ $\mathring{M}$	
direct	2891 Jun 09 11:34	3° $\mathring{A}$ 00'13		opposition	2899 May 03 00:04	13° $\mathring{M}$ 21'15	0°28'53
				min. Earth dist.	2899 May 03 12:45	13° $\mathring{M}$ 19'54	17.42129 AU
conjunction	2891 Sep 29 23:33	7° $\mathring{A}$ 32'56	0°42'14	direct	2899 Jul 18 22:48	11° $\mathring{M}$ 15'46	
minimum elong	2891 Sep 29 23:33	7° $\mathring{A}$ 32'56	0°42'14		2899 Oct 26 19:25	15° $\mathring{M}$	



conjunction	2899 Nov 07 16:44	15° <del>M</del> 44'44	0°24'23	conjunction	2906 Dec 10 12:58	18° <del>2</del> 00'55	0°00'41
minimum elong	2899 Nov 07 16:45	15° <del>M</del> 44'44	0°24'22	minimum elong	2906 Dec 10 12:58	18° <del>2</del> 00'55	0°00'40
max. Earth dist.	2899 Nov 07 02:58	15° <del>M</del> 42'34	19.44074 AU	behind sun begin	2906 Dec 10 06:24	17° <del>2</del> 59'56	
retrograde	2900 Feb 22 19:33	20° <del>M</del> 05'10		behind sun end	2906 Dec 10 19:32	18° <del>2</del> 01'55	
opposition	2900 May 08 01:29	18° <del>M</del> 03'34	0°25'28	max. Earth dist.	2906 Dec 10 12:36	18° <del>2</del> 00'54	19.83386 AU
min. Earth dist.	2900 May 08 13:06	18° <del>M</del> 02'19	17.46165 AU	desc. node	2907 Feb 17 11:04	21° <del>2</del> 36'22	
direct	2900 Jul 24 01:07	15° <del>M</del> 58'16		retrograde	2907 Mar 27 17:46	22° <del>2</del> 15'15	
				opposition	2907 Jun 11 00:28	20° <del>2</del> 14'56	0°-1'-11
conjunction	2900 Nov 12 15:30	20° <del>M</del> 26'11	0°21'15	min. Earth dist.	2907 Jun 10 22:53	20° <del>2</del> 15'06	17.86716 AU
minimum elong	2900 Nov 12 15:30	20° <del>M</del> 26'11	0°21'15	direct	2907 Aug 27 06:22	18° <del>2</del> 12'10	
max. Earth dist.	2900 Nov 12 04:02	20° <del>M</del> 24'23	19.48376 AU				
retrograde	2901 Feb 27 17:57	24° <del>M</del> 45'47		conjunction	2907 Dec 15 05:33	22° <del>2</del> 30'39	0°-2'-54
opposition	2901 May 13 02:37	22° <del>M</del> 44'20	0°21'53	minimum elong	2907 Dec 15 05:33	22° <del>2</del> 30'39	0°02'55
min. Earth dist.	2901 May 13 11:42	22° <del>M</del> 43'22	17.50716 AU	behind sun begin	2907 Dec 14 22:59	22° <del>2</del> 29'40	
direct	2901 Jul 29 04:31	20° <del>M</del> 39'18		behind sun end	2907 Dec 15 12:06	22° <del>2</del> 31'38	
				max. Earth dist.	2907 Dec 15 07:39	22° <del>2</del> 30'55	19.90109 AU
conjunction	2901 Nov 17 13:11	25° <del>M</del> 06'02	0°18'00	retrograde	2908 Mar 31 09:43	26° <del>2</del> 44'02	
minimum elong	2901 Nov 17 13:11	25° <del>M</del> 06'02	0°17'59	opposition	2908 Jun 14 22:25	24° <del>2</del> 43'55	0°-5'-4
max. Earth dist.	2901 Nov 17 03:37	25° <del>M</del> 04'33	19.53190 AU	min. Earth dist.	2908 Jun 14 20:17	24° <del>2</del> 44'08	17.93481 AU
retrograde	2902 Mar 04 14:14	29° <del>M</del> 24'50		direct	2908 Aug 31 03:33	22° <del>2</del> 41'32	
opposition	2902 May 18 03:27	27° <del>M</del> 23'31	0°18'11				
min. Earth dist.	2902 May 18 11:28	27° <del>M</del> 22'40	17.55788 AU	conjunction	2908 Dec 18 21:08	26° <del>2</del> 58'27	0°-6'-22
direct	2902 Aug 03 04:53	25° <del>M</del> 18'48		minimum elong	2908 Dec 18 21:09	26° <del>2</del> 58'28	0°06'23
				behind sun begin	2908 Dec 18 14:56	26° <del>2</del> 57'32	
conjunction	2902 Nov 22 10:08	29° <del>M</del> 44'19	0°14'38	behind sun end	2908 Dec 19 03:21	26° <del>2</del> 59'23	
minimum elong	2902 Nov 22 10:08	29° <del>M</del> 44'19	0°14'39	max. Earth dist.	2908 Dec 18 23:57	26° <del>2</del> 58'51	19.96905 AU
behind sun begin	2902 Nov 22 07:16	29° <del>M</del> 43'52			2909 Feb 11 15:46	0° <del>2</del>	
behind sun end	2902 Nov 22 13:00	29° <del>M</del> 44'45		retrograde	2909 Apr 05 03:59	1° <del>2</del> 10'55	
max. Earth dist.	2902 Nov 22 02:33	29° <del>M</del> 43'08	19.58514 AU		2909 May 30 10:14	30° <del>R</del> <del>2</del>	
	2902 Nov 26 14:19	0° <del>2</del>		opposition	2909 Jun 19 19:37	29° <del>2</del> 10'56	0°-8'-53
retrograde	2903 Mar 09 12:20	4° <del>2</del> 02'14		min. Earth dist.	2909 Jun 19 15:00	29° <del>2</del> 11'24	18.00289 AU
opposition	2903 May 23 03:34	2° <del>2</del> 01'08	0°14'24	direct	2909 Sep 05 02:05	27° <del>2</del> 08'55	
min. Earth dist.	2903 May 23 08:51	2° <del>2</del> 00'34	17.61324 AU		2909 Nov 30 03:01	0° <del>2</del>	
	2903 Jul 28 01:47	30° <del>R</del> <del>M</del>					
direct	2903 Aug 08 07:06	29° <del>M</del> 56'45		conjunction	2909 Dec 23 11:53	1° <del>2</del> 24'18	0°-9'-45
	2903 Aug 19 10:47	0° <del>2</del>		minimum elong	2909 Dec 23 11:53	1° <del>2</del> 24'18	0°09'46
				behind sun begin	2909 Dec 23 06:28	1° <del>2</del> 23'29	
conjunction	2903 Nov 27 06:15	4° <del>2</del> 20'59	0°11'13	behind sun end	2909 Dec 23 17:18	1° <del>2</del> 25'06	
minimum elong	2903 Nov 27 06:14	4° <del>2</del> 20'59	0°11'13	max. Earth dist.	2909 Dec 23 17:13	1° <del>2</del> 25'05	20.03705 AU
behind sun begin	2903 Nov 27 01:19	4° <del>2</del> 20'14		retrograde	2910 Apr 09 18:35	5° <del>2</del> 35'48	
behind sun end	2903 Nov 27 11:09	4° <del>2</del> 21'44		opposition	2910 Jun 24 16:13	3° <del>2</del> 35'57	0°-12'-38
max. Earth dist.	2903 Nov 27 00:51	4° <del>2</del> 20'10	19.64263 AU	min. Earth dist.	2910 Jun 24 11:01	3° <del>2</del> 36'29	18.07077 AU
retrograde	2904 Mar 13 07:15	8° <del>2</del> 38'02		direct	2910 Sep 09 22:05	1° <del>2</del> 34'18	
opposition	2904 May 27 03:36	6° <del>2</del> 37'08	0°10'33				
min. Earth dist.	2904 May 27 08:05	6° <del>2</del> 36'40	17.67266 AU	conjunction	2910 Dec 28 01:40	5° <del>2</del> 48'05	0°-13'-4
direct	2904 Aug 12 06:19	4° <del>2</del> 33'09		minimum elong	2910 Dec 28 01:39	5° <del>2</del> 48'05	0°13'05
				behind sun begin	2910 Dec 27 21:38	5° <del>2</del> 47'29	
conjunction	2904 Dec 01 01:17	8° <del>2</del> 56'01	0°07'45	behind sun end	2910 Dec 28 05:41	5° <del>2</del> 48'41	
minimum elong	2904 Dec 01 01:17	8° <del>2</del> 56'01	0°07'45	max. Earth dist.	2910 Dec 28 07:27	5° <del>2</del> 48'57	20.10481 AU
behind sun begin	2904 Nov 30 19:19	8° <del>2</del> 55'07		retrograde	2911 Apr 14 10:54	9° <del>2</del> 58'39	
behind sun end	2904 Dec 01 07:14	8° <del>2</del> 56'55		opposition	2911 Jun 29 11:48	7° <del>2</del> 58'54	0°-16'-16
max. Earth dist.	2904 Nov 30 21:28	8° <del>2</del> 55'27	19.70384 AU	min. Earth dist.	2911 Jun 29 04:23	7° <del>2</del> 59'39	18.13834 AU
retrograde	2905 Mar 18 04:35	13° <del>2</del> 12'11		direct	2911 Sep 14 18:16	5° <del>2</del> 57'34	
opposition	2905 Jun 01 03:05	11° <del>2</del> 11'29	0°06'38				
min. Earth dist.	2905 Jun 01 04:44	11° <del>2</del> 11'18	17.73529 AU	conjunction	2912 Jan 01 14:38	10° <del>2</del> 09'47	0°-16'-17
direct	2905 Aug 17 07:45	9° <del>2</del> 07'54		minimum elong	2912 Jan 01 14:38	10° <del>2</del> 09'47	0°16'19
				max. Earth dist.	2912 Jan 01 23:04	10° <del>2</del> 11'03	20.17213 AU
conjunction	2905 Dec 05 19:37	13° <del>2</del> 29'21	0°04'15	retrograde	2912 Apr 18 00:19	14° <del>2</del> 19'24	
minimum elong	2905 Dec 05 19:37	13° <del>2</del> 29'21	0°04'16	opposition	2912 Jul 03 06:55	12° <del>2</del> 19'44	0°-19'-47
behind sun begin	2905 Dec 05 13:08	13° <del>2</del> 28'22		min. Earth dist.	2912 Jul 02 22:37	12° <del>2</del> 20'35	18.20548 AU
behind sun end	2905 Dec 06 02:07	13° <del>2</del> 30'20		direct	2912 Sep 18 12:50	10° <del>2</del> 18'44	
max. Earth dist.	2905 Dec 05 18:14	13° <del>2</del> 29'11	19.76778 AU				
retrograde	2906 Mar 22 22:00	17° <del>2</del> 44'36		conjunction	2913 Jan 05 02:22	14° <del>2</del> 29'22	0°-19'-24
opposition	2906 Jun 06 02:06	15° <del>2</del> 44'07	0°02'43	minimum elong	2913 Jan 05 02:22	14° <del>2</del> 29'22	0°19'24
min. Earth dist.	2906 Jun 06 03:09	15° <del>2</del> 44'00	17.80041 AU	max. Earth dist.	2913 Jan 05 11:28	14° <del>2</del> 30'43	20.23920 AU
direct	2906 Aug 22 06:02	13° <del>2</del> 40'56		retrograde	2913 Apr 22 14:42	18° <del>2</del> 38'06	
				opposition	2913 Jul 08 01:08	16° <del>2</del> 38'29	0°-23'-9

min. Earth dist.	2913 Jul 07 14:36	16° $\overline{39}$ '33	18.27256 AU	max. Earth dist.	2921 Feb 07 19:33	18° $\approx$ 05'21	20.75137 AU
direct	2913 Sep 23 06:20	14° $\overline{37}$ '47		retrograde	2921 May 26 12:15	22° $\approx$ 05'30	
conjunction	2914 Jan 09 13:31	18° $\overline{46}$ '53	0°-22'-21	min. Earth dist.	2921 Aug 11 04:41	20° $\approx$ 08'50	18.77883 AU
minimum elong	2914 Jan 09 13:31	18° $\overline{46}$ '53	0°22'23	opposition	2921 Aug 12 00:46	20° $\approx$ 06'50	0°-43'-27
max. Earth dist.	2914 Jan 10 01:26	18° $\overline{48}$ '40	20.30615 AU	direct	2921 Oct 27 15:42	18° $\approx$ 09'00	
retrograde	2914 Apr 27 03:08	22° $\overline{54}$ '44		conjunction	2922 Feb 11 06:11	22° $\approx$ 07'44	0°-40'-1
opposition	2914 Jul 12 18:26	20° $\overline{55}$ '13	0°-26'-21	minimum elong	2922 Feb 11 06:11	22° $\approx$ 07'44	0°40'01
min. Earth dist.	2914 Jul 12 06:45	20° $\overline{56}$ '24	18.33952 AU	max. Earth dist.	2922 Feb 12 03:41	22° $\approx$ 10'53	20.80474 AU
direct	2914 Sep 27 22:52	18° $\overline{54}$ '51		retrograde	2922 May 30 22:30	26° $\approx$ 10'17	
conjunction	2915 Jan 13 23:41	23° $\overline{02}$ '28	0°-25'-10	opposition	2922 Aug 16 12:44	24° $\approx$ 11'40	0°-45'-2
minimum elong	2915 Jan 13 23:41	23° $\overline{02}$ '28	0°25'11	min. Earth dist.	2922 Aug 15 15:56	24° $\approx$ 13'45	18.83002 AU
max. Earth dist.	2915 Jan 14 12:08	23° $\overline{04}$ '19	20.37309 AU	direct	2922 Nov 01 02:35	22° $\approx$ 14'07	
retrograde	2915 May 01 16:12	27° $\overline{09}$ '29		conjunction	2923 Feb 15 12:10	26° $\approx$ 11'49	0°-41'-21
opposition	2915 Jul 17 11:04	25° $\overline{10}$ '04	0°-29'-23	minimum elong	2923 Feb 15 12:10	26° $\approx$ 11'49	0°41'22
min. Earth dist.	2915 Jul 16 21:21	25° $\overline{11}$ '27	18.40648 AU	max. Earth dist.	2923 Feb 16 09:04	26° $\approx$ 14'52	20.85365 AU
direct	2915 Oct 02 13:44	23° $\overline{10}$ '04			2923 May 11 13:38	0° $\overline{13}$ '54	
conjunction	2916 Jan 18 09:12	27° $\overline{16}$ '14	0°-27'-50	retrograde	2923 Jun 04 07:36	0° $\overline{13}$ '54	
minimum elong	2916 Jan 18 09:12	27° $\overline{16}$ '14	0°27'51		2923 Jun 28 10:17	30° $\overline{17}$ '23	
max. Earth dist.	2916 Jan 19 00:21	27° $\overline{18}$ '30	20.43978 AU	min. Earth dist.	2923 Aug 20 03:35	28° $\approx$ 17'23	18.87669 AU
retrograde	2916 Mar 08 05:16	0° $\approx$		opposition	2923 Aug 21 00:22	28° $\approx$ 15'18	0°-46'-23
	2916 May 05 03:49	1° $\approx$ 22'29		direct	2923 Nov 05 11:38	26° $\approx$ 17'59	
	2916 Jul 05 17:13	30° $\overline{18}$ '30			2924 Feb 15 12:47	0° $\overline{14}$ '42	
min. Earth dist.	2916 Jul 20 12:00	29° $\overline{24}$ '43	18.47289 AU	conjunction	2924 Feb 19 17:49	0° $\overline{14}$ '42	0°-42'-29
opposition	2916 Jul 21 03:02	29° $\overline{23}$ '11	0°-32'-14	minimum elong	2924 Feb 19 17:49	0° $\overline{14}$ '42	0°42'30
direct	2916 Oct 06 04:12	27° $\overline{23}$ '34		max. Earth dist.	2924 Feb 20 16:08	0° $\overline{17}$ '57	20.89788 AU
	2916 Dec 27 12:00	0° $\approx$		retrograde	2924 Jun 07 17:02	4° $\overline{16}$ '20	
conjunction	2917 Jan 21 17:56	1° $\approx$ 28'21	0°-30'-19	opposition	2924 Aug 24 11:21	2° $\overline{17}$ '44	0°-47'-30
minimum elong	2917 Jan 21 17:56	1° $\approx$ 28'21	0°30'20	min. Earth dist.	2924 Aug 23 13:49	2° $\overline{19}$ '53	18.91849 AU
max. Earth dist.	2917 Jan 22 09:30	1° $\approx$ 30'40	20.50586 AU	direct	2924 Nov 08 21:53	0° $\overline{20}$ '36	
retrograde	2917 May 09 16:20	5° $\approx$ 33'53		conjunction	2925 Feb 22 23:03	4° $\overline{16}$ '23	0°-43'-24
opposition	2917 Jul 25 18:14	3° $\approx$ 34'43	0°-34'-53	minimum elong	2925 Feb 22 23:03	4° $\overline{16}$ '23	0°43'24
min. Earth dist.	2917 Jul 25 01:39	3° $\approx$ 36'23	18.53857 AU	max. Earth dist.	2925 Feb 23 20:44	4° $\overline{19}$ '32	20.93739 AU
direct	2917 Oct 10 17:20	1° $\approx$ 35'28		retrograde	2925 Jun 12 00:59	8° $\overline{17}$ '38	
conjunction	2918 Jan 26 02:12	5° $\approx$ 38'56	0°-32'-38	opposition	2925 Aug 28 21:41	6° $\overline{18}$ '58	0°-48'-23
minimum elong	2918 Jan 26 02:12	5° $\approx$ 38'56	0°32'39	min. Earth dist.	2925 Aug 28 00:25	6° $\overline{21}$ '06	18.95588 AU
max. Earth dist.	2918 Jan 26 20:11	5° $\approx$ 41'36	20.57075 AU	direct	2925 Nov 13 05:15	4° $\overline{21}$ '58	
retrograde	2918 May 14 03:24	9° $\approx$ 43'46		conjunction	2926 Feb 27 04:05	8° $\overline{16}$ '56	0°-44'-5
opposition	2918 Jul 30 08:45	7° $\approx$ 44'46	0°-37'-21	minimum elong	2926 Feb 27 04:05	8° $\overline{16}$ '56	0°44'07
min. Earth dist.	2918 Jul 29 15:02	7° $\approx$ 46'33	18.60255 AU	max. Earth dist.	2926 Feb 28 03:09	8° $\overline{20}$ '16	20.97257 AU
direct	2918 Oct 15 05:50	5° $\approx$ 45'54		retrograde	2926 Jun 16 09:15	12° $\overline{17}$ '49	
conjunction	2919 Jan 30 09:45	9° $\approx$ 48'05	0°-34'-46	min. Earth dist.	2926 Sep 01 09:16	10° $\overline{21}$ '18	18.98897 AU
minimum elong	2919 Jan 30 09:45	9° $\approx$ 48'05	0°34'48	opposition	2926 Sep 02 07:22	10° $\overline{19}$ '06	0°-49'-1
max. Earth dist.	2919 Jan 31 03:47	9° $\approx$ 50'45	20.63370 AU	direct	2926 Nov 17 14:31	8° $\overline{22}$ '14	
retrograde	2919 May 18 14:57	13° $\approx$ 52'18		conjunction	2927 Mar 03 08:37	12° $\overline{16}$ '26	0°-44'-33
opposition	2919 Aug 03 22:37	11° $\approx$ 53'25	0°-39'-36	minimum elong	2927 Mar 03 08:37	12° $\overline{16}$ '26	0°44'34
min. Earth dist.	2919 Aug 03 03:56	11° $\approx$ 55'17	18.66441 AU	max. Earth dist.	2927 Mar 04 07:05	12° $\overline{19}$ '41	21.00370 AU
direct	2919 Oct 19 17:41	9° $\approx$ 54'55		retrograde	2927 Jun 20 16:57	16° $\overline{17}$ '03	
conjunction	2920 Feb 03 17:03	13° $\approx$ 55'54	0°-36'-43	opposition	2927 Sep 06 16:40	14° $\overline{18}$ '16	0°-49'-24
minimum elong	2920 Feb 03 17:03	13° $\approx$ 55'54	0°36'44	min. Earth dist.	2927 Sep 05 18:50	14° $\overline{20}$ '27	19.01837 AU
max. Earth dist.	2920 Feb 04 13:10	13° $\approx$ 58'52	20.69415 AU	direct	2927 Nov 21 20:26	12° $\overline{21}$ '31	
retrograde	2920 Feb 22 00:37	15° $\approx$		conjunction	2928 Mar 06 13:12	16° $\overline{15}$ '05	0°-44'-48
opposition	2920 May 22 01:44	17° $\approx$ 59'31		minimum elong	2928 Mar 06 13:12	16° $\overline{15}$ '05	0°44'50
min. Earth dist.	2920 Aug 07 11:59	16° $\approx$ 00'45	0°-41'-38	max. Earth dist.	2928 Mar 07 13:01	16° $\overline{18}$ '30	21.03128 AU
direct	2920 Aug 06 16:18	16° $\approx$ 02'43	18.72333 AU	retrograde	2928 Jun 24 00:33	20° $\overline{15}$ '29	
	2920 Sep 03 00:03	15° $\overline{18}$ '30		min. Earth dist.	2928 Sep 09 02:36	18° $\overline{18}$ '57	19.04416 AU
	2920 Oct 23 05:14	14° $\approx$ 02'37		opposition	2928 Sep 10 01:23	18° $\overline{16}$ '40	0°-49'-33
	2920 Dec 10 07:42	15° $\approx$		direct	2928 Nov 25 04:24	16° $\overline{20}$ '03	
conjunction	2921 Feb 06 23:39	18° $\approx$ 02'26	0°-38'-28	conjunction	2929 Mar 10 17:28	20° $\overline{13}$ '03	0°-44'-51
minimum elong	2921 Feb 06 23:39	18° $\approx$ 02'26	0°38'30	minimum elong	2929 Mar 10 17:28	20° $\overline{13}$ '03	0°44'51

max. Earth dist.	2929 Mar 11 16:33	20° <del>✕</del> 16'22	21.05531 AU	max. Earth dist.	2937 Apr 12 04:31	21° <del>Υ</del> 55'42	21.09193 AU
retrograde	2929 Jun 28 08:34	24° <del>✕</del> 13'20		retrograde	2937 Jul 30 22:26	25° <del>Υ</del> 54'25	
min. Earth dist.	2929 Sep 13 11:33	22° <del>✕</del> 16'42	19.06648 AU	opposition	2937 Oct 16 20:07	23° <del>Υ</del> 55'16	0°-40'-40
opposition	2929 Sep 14 09:49	22° <del>✕</del> 14'29	0°-49'-28	min. Earth dist.	2937 Oct 16 02:45	23° <del>Υ</del> 57'01	19.08304 AU
direct	2929 Nov 29 09:16	20° <del>✕</del> 18'00		direct	2937 Dec 31 02:16	21° <del>Υ</del> 59'05	
conjunction	2930 Mar 14 21:56	24° <del>✕</del> 10'33	0°-44'-40	conjunction	2938 Apr 15 15:29	25° <del>Υ</del> 51'25	0°-35'-56
minimum elong	2930 Mar 14 21:56	24° <del>✕</del> 10'33	0°44'41	minimum elong	2938 Apr 15 15:29	25° <del>Υ</del> 51'25	0°35'56
max. Earth dist.	2930 Mar 15 22:07	24° <del>✕</del> 14'01	21.07576 AU	max. Earth dist.	2938 Apr 16 10:39	25° <del>Υ</del> 54'08	21.07217 AU
retrograde	2930 Jul 02 15:54	28° <del>✕</del> 10'46		retrograde	2938 Aug 04 07:15	29° <del>Υ</del> 53'12	
opposition	2930 Sep 18 17:36	26° <del>✕</del> 11'55	0°-49'-9	min. Earth dist.	2938 Oct 20 09:30	27° <del>Υ</del> 55'38	19.06049 AU
min. Earth dist.	2930 Sep 17 18:37	26° <del>✕</del> 14'13	19.08499 AU	opposition	2938 Oct 21 02:42	27° <del>Υ</del> 53'54	0°-38'-36
direct	2930 Dec 03 15:57	24° <del>✕</del> 15'33		direct	2939 Jan 04 08:13	25° <del>Υ</del> 57'34	
conjunction	2931 Mar 19 02:14	28° <del>✕</del> 07'46	0°-44'-17	conjunction	2939 Apr 19 21:58	29° <del>Υ</del> 50'13	0°-33'-58
minimum elong	2931 Mar 19 02:14	28° <del>✕</del> 07'46	0°44'18	minimum elong	2939 Apr 19 21:59	29° <del>Υ</del> 50'13	0°34'00
max. Earth dist.	2931 Mar 20 01:27	28° <del>✕</del> 11'06	21.09238 AU	max. Earth dist.	2939 Apr 20 15:08	29° <del>Υ</del> 52'39	21.04717 AU
	2931 Apr 22 01:22	0° <del>Υ</del>			2939 Apr 22 18:39	0° <del>♄</del>	
retrograde	2931 Jul 06 23:42	2° <del>Υ</del> 08'00		retrograde	2939 Aug 08 14:40	3° <del>♄</del> 52'24	
min. Earth dist.	2931 Sep 22 03:17	0° <del>Υ</del> 11'21	19.09966 AU	opposition	2939 Oct 25 09:31	1° <del>♄</del> 52'54	0°-36'-21
opposition	2931 Sep 23 01:26	0° <del>Υ</del> 09'09	0°-48'-36	min. Earth dist.	2939 Oct 24 18:15	1° <del>♄</del> 54'26	19.03315 AU
	2931 Sep 26 21:06	30° <del>♁</del> <del>✕</del>			2939 Dec 27 14:58	30° <del>♁</del> <del>Υ</del>	
direct	2931 Dec 07 20:22	28° <del>✕</del> 12'55		direct	2940 Jan 08 12:23	29° <del>Υ</del> 56'23	
	2932 Feb 12 23:03	0° <del>Υ</del>			2940 Jan 20 07:14	0° <del>♄</del>	
conjunction	2932 Mar 22 06:42	2° <del>Υ</del> 04'53	0°-43'-42	conjunction	2940 Apr 23 04:57	3° <del>♄</del> 49'26	0°-31'-51
minimum elong	2932 Mar 22 06:42	2° <del>Υ</del> 04'53	0°43'42	minimum elong	2940 Apr 23 04:57	3° <del>♄</del> 49'26	0°31'52
max. Earth dist.	2932 Mar 23 06:50	2° <del>Υ</del> 08'20	21.10499 AU	max. Earth dist.	2940 Apr 23 22:03	3° <del>♄</del> 51'52	21.01768 AU
retrograde	2932 Jul 10 07:42	6° <del>Υ</del> 05'11		retrograde	2940 Aug 12 00:03	7° <del>♄</del> 52'03	
min. Earth dist.	2932 Sep 25 10:16	4° <del>Υ</del> 08'36	19.11001 AU	opposition	2940 Oct 28 16:08	5° <del>♄</del> 52'23	0°-33'-55
opposition	2932 Sep 26 08:53	4° <del>Υ</del> 06'20	0°-47'-50	min. Earth dist.	2940 Oct 28 00:57	5° <del>♄</del> 53'55	19.00147 AU
direct	2932 Dec 11 02:19	2° <del>Υ</del> 10'13		direct	2941 Jan 11 18:31	3° <del>♄</del> 55'39	
conjunction	2933 Mar 26 11:21	6° <del>Υ</del> 02'02	0°-42'-54	conjunction	2941 Apr 27 12:22	7° <del>♄</del> 49'13	0°-29'-34
minimum elong	2933 Mar 26 11:21	6° <del>Υ</del> 02'02	0°42'55	minimum elong	2941 Apr 27 12:22	7° <del>♄</del> 49'13	0°29'34
max. Earth dist.	2933 Mar 27 10:12	6° <del>Υ</del> 05'18	21.11308 AU	max. Earth dist.	2941 Apr 28 03:26	7° <del>♄</del> 51'22	20.98403 AU
retrograde	2933 Jul 14 14:57	10° <del>Υ</del> 02'29		retrograde	2941 Aug 16 08:10	11° <del>♄</del> 52'20	
opposition	2933 Sep 30 16:07	8° <del>Υ</del> 03'37	0°-46'-50	opposition	2941 Nov 01 22:51	9° <del>♄</del> 52'29	0°-31'-19
min. Earth dist.	2933 Sep 29 18:55	8° <del>Υ</del> 05'44	19.11576 AU	min. Earth dist.	2941 Nov 01 09:40	9° <del>♄</del> 53'49	18.96599 AU
direct	2933 Dec 15 06:23	6° <del>Υ</del> 07'35		direct	2942 Jan 15 22:25	7° <del>♄</del> 55'32	
conjunction	2934 Mar 30 16:25	9° <del>Υ</del> 59'21	0°-41'-54	conjunction	2942 May 01 20:26	11° <del>♄</del> 49'43	0°-27'-8
minimum elong	2934 Mar 30 16:25	9° <del>Υ</del> 59'21	0°41'54	minimum elong	2942 May 01 20:26	11° <del>♄</del> 49'43	0°27'09
max. Earth dist.	2934 Mar 31 15:40	10° <del>Υ</del> 02'40	21.11629 AU	max. Earth dist.	2942 May 02 11:18	11° <del>♄</del> 51'50	20.94684 AU
retrograde	2934 Jul 18 23:38	13° <del>Υ</del> 59'59			2942 Jul 04 07:16	15° <del>♄</del>	
opposition	2934 Oct 04 23:09	12° <del>Υ</del> 01'07	0°-45'-37	retrograde	2942 Aug 20 18:35	15° <del>♄</del> 53'23	
min. Earth dist.	2934 Oct 04 01:55	12° <del>Υ</del> 03'14	19.11624 AU		2942 Oct 08 08:24	15° <del>♁</del> <del>♄</del>	
direct	2934 Dec 19 12:14	10° <del>Υ</del> 05'08		opposition	2942 Nov 06 05:39	13° <del>♄</del> 53'22	0°-28'-33
conjunction	2935 Apr 03 21:32	13° <del>Υ</del> 56'55	0°-40'-42	min. Earth dist.	2942 Nov 05 16:31	13° <del>♄</del> 54'42	18.92703 AU
minimum elong	2935 Apr 03 21:32	13° <del>Υ</del> 56'55	0°40'43	direct	2943 Jan 20 05:04	11° <del>♄</del> 56'13	
max. Earth dist.	2935 Apr 04 19:02	13° <del>Υ</del> 59'59	21.11400 AU		2943 Apr 21 05:33	15° <del>♄</del>	
retrograde	2935 Jul 23 06:32	17° <del>Υ</del> 57'49		conjunction	2943 May 06 04:45	15° <del>♄</del> 51'05	0°-24'-34
min. Earth dist.	2935 Oct 08 10:48	16° <del>Υ</del> 00'50	19.11112 AU	minimum elong	2943 May 06 04:45	15° <del>♄</del> 51'05	0°24'34
opposition	2935 Oct 09 06:19	15° <del>Υ</del> 58'53	0°-44'-11	max. Earth dist.	2943 May 06 17:40	15° <del>♄</del> 52'56	20.90629 AU
direct	2935 Dec 23 16:10	14° <del>Υ</del> 02'53		retrograde	2943 Aug 25 03:31	19° <del>♄</del> 55'24	
conjunction	2936 Apr 07 03:16	17° <del>Υ</del> 54'47	0°-39'-18	opposition	2943 Nov 10 12:52	17° <del>♄</del> 55'13	0°-25'-38
minimum elong	2936 Apr 07 03:16	17° <del>Υ</del> 54'47	0°39'18	min. Earth dist.	2943 Nov 10 01:47	17° <del>♄</del> 56'21	18.88494 AU
max. Earth dist.	2936 Apr 08 00:44	17° <del>Υ</del> 57'51	21.10597 AU	direct	2944 Jan 24 09:09	15° <del>♄</del> 57'51	
retrograde	2936 Jul 26 15:26	21° <del>Υ</del> 55'57		conjunction	2944 May 09 14:04	19° <del>♄</del> 53'32	0°-21'-52
opposition	2936 Oct 12 13:10	19° <del>Υ</del> 56'56	0°-42'-32	minimum elong	2944 May 09 14:04	19° <del>♄</del> 53'32	0°21'53
min. Earth dist.	2936 Oct 11 17:48	19° <del>Υ</del> 58'52	19.10002 AU	max. Earth dist.	2944 May 10 02:39	19° <del>♄</del> 55'20	20.86278 AU
direct	2936 Dec 26 22:11	18° <del>Υ</del> 00'53		retrograde	2944 Aug 28 15:15	23° <del>♄</del> 58'30	
conjunction	2937 Apr 11 09:09	21° <del>Υ</del> 52'57	0°-37'-42	opposition	2944 Nov 13 20:03	21° <del>♄</del> 58'12	0°-22'-35
minimum elong	2937 Apr 11 09:09	21° <del>Υ</del> 52'57	0°37'44	min. Earth dist.	2944 Nov 13 09:10	21° <del>♄</del> 59'19	18.83986 AU
				direct	2945 Jan 27 16:25	20° <del>♄</del> 00'37	

conjunction	2945 May 13 23:59	23°♄57'12	0°-19'-2	min. Earth dist.	2951 Dec 13 11:56	21°♄01'19	18.43391 AU
minimum elong	2945 May 13 23:59	23°♄57'12	0°19'04	direct	2952 Feb 25 23:55	19°♄01'46	
max. Earth dist.	2945 May 14 10:22	23°♄58'41	20.81624 AU				
retrograde	2945 Sep 02 01:16	28°♄02'55		conjunction	2952 Jun 12 21:16	23°♄06'48	0°03'13
opposition	2945 Nov 18 03:48	26°♄02'30	0°-19'-24	minimum elong	2952 Jun 12 21:17	23°♄06'48	0°03'13
min. Earth dist.	2945 Nov 17 19:13	26°♄03'23	18.79183 AU	behind sun begin	2952 Jun 12 14:34	23°♄05'51	
direct	2946 Jan 31 21:25	24°♄04'41		behind sun end	2952 Jun 13 03:59	23°♄07'45	
				max. Earth dist.	2952 Jun 12 19:09	23°♄06'32	20.39952 AU
conjunction	2946 May 18 10:43	28°♄02'17	0°-16'-6	retrograde	2952 Oct 02 00:21	27°♄18'28	
minimum elong	2946 May 18 10:43	28°♄02'17	0°16'08	opposition	2952 Dec 16 21:13	25°♄17'00	0°05'21
max. Earth dist.	2946 May 18 20:26	28°♄03'40	20.76675 AU	min. Earth dist.	2952 Dec 16 23:14	25°♄16'48	18.36416 AU
	2946 Jun 22 21:16	0°♄		direct	2953 Mar 01 11:37	23°♄16'52	
retrograde	2946 Sep 06 14:01	2°♄08'46					
opposition	2946 Nov 22 11:42	0°♄08'15	0°-16'-6	conjunction	2953 Jun 17 14:02	27°♄23'20	0°06'31
min. Earth dist.	2946 Nov 22 03:33	0°♄09'06	18.74069 AU	minimum elong	2953 Jun 17 14:02	27°♄23'20	0°06'32
	2946 Nov 25 19:39	30°♄		behind sun begin	2953 Jun 17 07:42	27°♄22'26	
direct	2947 Feb 05 05:20	28°♄10'14		behind sun end	2953 Jun 17 20:21	27°♄24'14	
	2947 Apr 13 18:28	0°♄		max. Earth dist.	2953 Jun 17 09:47	27°♄22'44	20.32898 AU
					2953 Aug 04 07:00	0°♄	
conjunction	2947 May 22 22:14	2°♄08'54	0°-13'-5	retrograde	2953 Oct 06 14:41	1°♄35'53	
minimum elong	2947 May 22 22:14	2°♄08'54	0°13'06		2953 Dec 11 03:16	30°♄	
behind sun begin	2947 May 22 18:20	2°♄08'21		opposition	2953 Dec 21 08:37	29°♄34'14	0°09'02
behind sun end	2947 May 23 02:09	2°♄09'27		min. Earth dist.	2953 Dec 21 13:04	29°♄33'45	18.29314 AU
max. Earth dist.	2947 May 23 05:34	2°♄09'57	20.71403 AU	direct	2954 Mar 05 22:21	27°♄33'40	
retrograde	2947 Sep 11 01:33	6°♄16'14			2954 May 23 19:49	0°♄	
opposition	2947 Nov 26 20:13	4°♄15'37	0°-12'-42				
min. Earth dist.	2947 Nov 26 14:39	4°♄16'11	18.68633 AU	conjunction	2954 Jun 22 07:28	1°♄41'35	0°09'49
direct	2948 Feb 09 11:41	2°♄17'19		minimum elong	2954 Jun 22 07:27	1°♄41'35	0°09'48
				behind sun begin	2954 Jun 22 01:59	1°♄40'47	
conjunction	2948 May 26 10:46	6°♄17'10	0°-9'-58	behind sun end	2954 Jun 22 12:56	1°♄42'22	
minimum elong	2948 May 26 10:46	6°♄17'10	0°09'58	max. Earth dist.	2954 Jun 22 01:40	1°♄40'44	20.25769 AU
behind sun begin	2948 May 26 05:22	6°♄16'25		retrograde	2954 Oct 11 07:18	5°♄55'03	
behind sun end	2948 May 26 16:10	6°♄17'56		opposition	2954 Dec 25 20:26	3°♄53'10	0°12'41
max. Earth dist.	2948 May 26 16:54	6°♄18'02	20.65797 AU	min. Earth dist.	2954 Dec 26 01:22	3°♄52'39	18.22170 AU
retrograde	2948 Sep 14 15:24	10°♄25'20		direct	2955 Mar 10 11:53	1°♄52'10	
opposition	2948 Nov 30 05:02	8°♄24'37	0°-9'-12				
min. Earth dist.	2948 Nov 30 00:12	8°♄25'07	18.62836 AU	conjunction	2955 Jun 27 01:52	6°♄01'35	0°13'04
direct	2949 Feb 12 20:29	6°♄26'02		minimum elong	2955 Jun 27 01:52	6°♄01'35	0°13'05
				behind sun begin	2955 Jun 26 21:57	6°♄01'01	
conjunction	2949 May 31 00:10	10°♄27'06	0°-6'-47	behind sun end	2955 Jun 27 05:46	6°♄02'09	
minimum elong	2949 May 31 00:10	10°♄27'06	0°06'48	max. Earth dist.	2955 Jun 26 18:28	6°♄00'30	20.18618 AU
behind sun begin	2949 May 30 17:54	10°♄26'13		retrograde	2955 Oct 15 22:33	10°♄15'57	
behind sun end	2949 May 31 06:25	10°♄27'59		opposition	2955 Dec 30 08:56	8°♄13'54	0°16'17
max. Earth dist.	2949 May 31 03:33	10°♄27'34	20.59811 AU	min. Earth dist.	2955 Dec 30 16:04	8°♄13'09	18.15046 AU
retrograde	2949 Sep 19 04:16	14°♄36'08		direct	2956 Mar 13 23:44	6°♄12'28	
opposition	2949 Dec 04 14:25	12°♄35'16	0°-5'-37				
min. Earth dist.	2949 Dec 04 12:22	12°♄35'29	18.56669 AU	conjunction	2956 Jun 30 21:09	10°♄23'25	0°16'16
direct	2950 Feb 17 04:23	10°♄36'21		minimum elong	2956 Jun 30 21:09	10°♄23'25	0°16'16
				max. Earth dist.	2956 Jun 30 11:59	10°♄22'04	20.11535 AU
conjunction	2950 Jun 04 14:26	14°♄38'42	0°-3'-32	retrograde	2956 Oct 19 16:40	14°♄38'42	
minimum elong	2950 Jun 04 14:26	14°♄38'42	0°03'32	opposition	2957 Jan 02 22:01	12°♄36'30	0°19'48
behind sun begin	2950 Jun 04 07:46	14°♄37'45		min. Earth dist.	2957 Jan 03 05:39	12°♄35'41	18.08010 AU
behind sun end	2950 Jun 04 21:06	14°♄39'39		direct	2957 Mar 18 15:18	10°♄34'38	
max. Earth dist.	2950 Jun 04 16:18	14°♄38'55	20.53480 AU				
retrograde	2950 Sep 23 19:00	18°♄48'36		conjunction	2957 Jul 05 17:21	14°♄47'10	0°19'24
opposition	2950 Dec 09 00:12	16°♄47'33	0°-1'-59	minimum elong	2957 Jul 05 17:22	14°♄47'10	0°19'24
min. Earth dist.	2950 Dec 08 22:51	16°♄47'41	18.50169 AU	max. Earth dist.	2957 Jul 05 06:59	14°♄45'38	20.04545 AU
direct	2951 Feb 21 14:30	14°♄48'16		retrograde	2957 Oct 24 09:04	19°♄03'22	
				opposition	2958 Jan 07 11:53	17°♄01'02	0°23'15
conjunction	2951 Jun 09 05:19	18°♄51'55	0°00'-10	min. Earth dist.	2958 Jan 07 21:28	17°♄00'00	18.01098 AU
minimum elong	2951 Jun 09 05:18	18°♄51'55	0°00'11	direct	2958 Mar 23 04:41	14°♄58'47	
behind sun begin	2951 Jun 08 22:38	18°♄50'59					
behind sun end	2951 Jun 09 11:58	18°♄52'52		conjunction	2958 Jul 10 14:23	19°♄12'55	0°22'26
max. Earth dist.	2951 Jun 09 04:44	18°♄51'53	20.46831 AU	minimum elong	2958 Jul 10 14:23	19°♄12'55	0°22'26
asc. node	2951 Jun 28 22:12	20°♄00'13		max. Earth dist.	2958 Jul 10 02:05	19°♄11'04	19.97725 AU
retrograde	2951 Sep 28 08:38	23°♄02'43		retrograde	2958 Oct 29 04:44	23°♄30'01	
opposition	2951 Dec 13 10:37	21°♄01'28	0°01'40	opposition	2959 Jan 12 02:25	21°♄27'36	0°26'34

min. Earth dist.	2959 Jan 12 12:33	21° <del>26</del> 26'31	17.94369 AU	max. Earth dist.	2966 Aug 16 21:22	25° <del>04</del> 46'31	19.49598 AU
direct	2959 Mar 27 21:35	19° <del>26</del> 24'59			2966 Nov 13 11:38	0° <del>00</del>	
				retrograde	2966 Dec 05 09:35	0° <del>00</del> 13'16	
conjunction	2959 Jul 15 12:22	23° <del>26</del> 40'44	0°25'22		2966 Dec 27 10:34	30° <del>00</del> R <del>0</del>	
minimum elong	2959 Jul 15 12:22	23° <del>26</del> 40'44	0°25'22	opposition	2967 Feb 17 03:09	28° <del>00</del> 10'18	0°46'28
max. Earth dist.	2959 Jul 14 23:17	23° <del>26</del> 38'46	19.91075 AU	min. Earth dist.	2967 Feb 17 23:11	28° <del>00</del> 08'06	17.47176 AU
retrograde	2959 Nov 02 23:23	27° <del>26</del> 58'44		direct	2967 May 03 09:45	26° <del>00</del> 04'54	
opposition	2960 Jan 16 17:52	25° <del>26</del> 56'16	0°29'46		2967 Aug 14 08:44	0° <del>00</del>	
min. Earth dist.	2960 Jan 17 05:51	25° <del>26</del> 54'58	17.87809 AU	max. Earth dist.	2967 Aug 22 01:20	0° <del>00</del> 28'33	19.44799 AU
direct	2960 Mar 31 13:03	23° <del>26</del> 53'19					
				conjunction	2967 Aug 23 00:51	0° <del>00</del> 32'12	0°42'20
conjunction	2960 Jul 19 11:19	28° <del>26</del> 10'40	0°28'10	minimum elong	2967 Aug 23 00:51	0° <del>00</del> 32'12	0°42'21
minimum elong	2960 Jul 19 11:19	28° <del>26</del> 10'40	0°28'10	retrograde	2967 Dec 10 09:30	4° <del>00</del> 55'43	
max. Earth dist.	2960 Jul 18 19:53	28° <del>26</del> 08'20	19.84607 AU	opposition	2968 Feb 22 00:23	2° <del>00</del> 52'42	0°47'47
	2960 Aug 19 12:44	0° <del>00</del>		min. Earth dist.	2968 Feb 22 20:26	2° <del>00</del> 50'30	17.42595 AU
retrograde	2960 Nov 06 20:18	2° <del>00</del> 29'34		direct	2968 May 07 09:18	0° <del>00</del> 47'00	
opposition	2961 Jan 20 09:53	0° <del>00</del> 27'02	0°32'48	max. Earth dist.	2968 Aug 26 03:47	5° <del>00</del> 11'31	19.40455 AU
min. Earth dist.	2961 Jan 20 22:50	0° <del>00</del> 25'38	17.81428 AU				
	2961 Jan 30 21:42	30° <del>00</del> R <del>0</del>		conjunction	2968 Aug 27 04:43	5° <del>00</del> 15'23	0°43'22
direct	2961 Apr 05 07:06	28° <del>00</del> 23'44		minimum elong	2968 Aug 27 04:43	5° <del>00</del> 15'23	0°43'22
	2961 Jun 06 07:34	0° <del>00</del>		retrograde	2968 Dec 14 08:12	9° <del>00</del> 39'19	
				opposition	2969 Feb 25 22:16	7° <del>00</del> 36'15	0°48'47
conjunction	2961 Jul 24 11:19	2° <del>00</del> 42'42	0°30'49	min. Earth dist.	2969 Feb 26 19:21	7° <del>00</del> 33'56	17.38522 AU
minimum elong	2961 Jul 24 11:18	2° <del>00</del> 42'42	0°30'48	direct	2969 May 12 09:26	5° <del>00</del> 30'16	
max. Earth dist.	2961 Jul 23 19:12	2° <del>00</del> 40'16	19.78288 AU	max. Earth dist.	2969 Aug 31 08:32	9° <del>00</del> 55'52	19.36655 AU
retrograde	2961 Nov 11 17:15	7° <del>00</del> 02'26					
opposition	2962 Jan 25 02:59	4° <del>00</del> 59'52	0°35'40	conjunction	2969 Sep 01 08:54	9° <del>00</del> 59'40	0°44'05
min. Earth dist.	2962 Jan 25 17:35	4° <del>00</del> 58'17	17.75191 AU	minimum elong	2969 Sep 01 08:54	9° <del>00</del> 59'40	0°44'05
direct	2962 Apr 10 00:42	2° <del>00</del> 56'14		retrograde	2969 Dec 19 08:42	14° <del>00</del> 23'55	
				opposition	2970 Mar 02 20:46	12° <del>00</del> 20'50	0°49'26
conjunction	2962 Jul 29 11:47	7° <del>00</del> 16'44	0°33'17	min. Earth dist.	2970 Mar 03 17:06	12° <del>00</del> 18'36	17.35012 AU
minimum elong	2962 Jul 29 11:47	7° <del>00</del> 16'44	0°33'17	direct	2970 May 17 11:02	10° <del>00</del> 14'39	
max. Earth dist.	2962 Jul 28 17:04	7° <del>00</del> 13'53	19.72129 AU				
retrograde	2962 Nov 16 15:06	11° <del>00</del> 37'16		conjunction	2970 Sep 06 13:05	14° <del>00</del> 44'55	0°44'31
opposition	2963 Jan 29 20:48	9° <del>00</del> 34'38	0°38'19	minimum elong	2970 Sep 06 13:04	14° <del>00</del> 44'55	0°44'32
min. Earth dist.	2963 Jan 30 12:30	9° <del>00</del> 32'56	17.69121 AU	max. Earth dist.	2970 Sep 05 12:17	14° <del>00</del> 41'03	19.33444 AU
direct	2963 Apr 14 20:19	7° <del>00</del> 30'38		retrograde	2970 Dec 24 07:38	19° <del>00</del> 09'27	
				opposition	2971 Mar 07 19:56	17° <del>00</del> 06'22	0°49'46
conjunction	2963 Aug 03 13:22	11° <del>00</del> 52'39	0°35'34	min. Earth dist.	2971 Mar 08 17:05	17° <del>00</del> 04'03	17.32126 AU
minimum elong	2963 Aug 03 13:21	11° <del>00</del> 52'39	0°35'34	direct	2971 May 22 12:21	15° <del>00</del> 00'03	
max. Earth dist.	2963 Aug 02 18:12	11° <del>00</del> 49'43	19.66132 AU				
	2963 Sep 29 02:54	15° <del>00</del>		conjunction	2971 Sep 11 17:36	19° <del>00</del> 31'05	0°44'39
retrograde	2963 Nov 21 13:27	16° <del>00</del> 13'54		minimum elong	2971 Sep 11 17:36	19° <del>00</del> 31'05	0°44'38
	2964 Jan 15 10:09	15° <del>00</del> R <del>0</del>		max. Earth dist.	2971 Sep 10 17:15	19° <del>00</del> 27'16	19.30882 AU
opposition	2964 Feb 03 15:17	14° <del>00</del> 11'12	0°40'46	retrograde	2971 Dec 29 08:52	23° <del>00</del> 55'49	
min. Earth dist.	2964 Feb 04 08:18	14° <del>00</del> 09'21	17.63219 AU	opposition	2972 Mar 11 19:24	21° <del>00</del> 52'48	0°49'45
direct	2964 Apr 18 16:05	12° <del>00</del> 06'51		min. Earth dist.	2972 Mar 12 15:27	21° <del>00</del> 50'36	17.29880 AU
	2964 Jul 13 15:22	15° <del>00</del>		direct	2972 May 26 15:29	19° <del>00</del> 46'24	
conjunction	2964 Aug 07 15:28	16° <del>00</del> 30'17	0°37'38	conjunction	2972 Sep 15 22:16	24° <del>00</del> 18'06	0°44'29
minimum elong	2964 Aug 07 15:28	16° <del>00</del> 30'17	0°37'37	minimum elong	2972 Sep 15 22:16	24° <del>00</del> 18'06	0°44'29
max. Earth dist.	2964 Aug 06 17:41	16° <del>00</del> 26'57	19.60339 AU	max. Earth dist.	2972 Sep 14 22:15	24° <del>00</del> 14'20	19.28957 AU
retrograde	2964 Nov 25 11:43	20° <del>00</del> 52'13		retrograde	2973 Jan 02 08:35	28° <del>00</del> 42'57	
opposition	2965 Feb 07 10:36	18° <del>00</del> 49'25	0°42'56	opposition	2973 Mar 16 19:42	26° <del>00</del> 40'04	0°49'24
min. Earth dist.	2965 Feb 08 04:49	18° <del>00</del> 47'26	17.57557 AU	min. Earth dist.	2973 Mar 17 16:30	26° <del>00</del> 37'47	17.28280 AU
direct	2965 Apr 23 13:20	16° <del>00</del> 44'42		direct	2973 May 31 17:20	24° <del>00</del> 33'37	
				max. Earth dist.	2973 Sep 20 02:54	29° <del>00</del> 02'06	19.27674 AU
conjunction	2965 Aug 12 18:10	21° <del>00</del> 09'31	0°39'27	conjunction	2973 Sep 21 02:42	29° <del>00</del> 05'51	0°44'00
minimum elong	2965 Aug 12 18:09	21° <del>00</del> 09'31	0°39'28	minimum elong	2973 Sep 21 02:42	29° <del>00</del> 05'51	0°44'00
max. Earth dist.	2965 Aug 11 20:23	21° <del>00</del> 06'10	19.54803 AU		2973 Oct 05 12:45	0° <del>00</del>	
retrograde	2965 Nov 30 11:00	25° <del>00</del> 32'02		retrograde	2974 Jan 07 11:03	3° <del>00</del> 30'45	
opposition	2966 Feb 12 06:33	23° <del>00</del> 29'10	0°44'51	opposition	2974 Mar 21 20:18	1° <del>00</del> 28'00	0°48'42
min. Earth dist.	2966 Feb 13 01:26	23° <del>00</del> 27'06	17.52176 AU	min. Earth dist.	2974 Mar 22 15:48	1° <del>00</del> 25'52	17.27292 AU
direct	2966 Apr 28 11:03	21° <del>00</del> 24'07			2974 Apr 27 22:54	30° <del>00</del> R <del>0</del>	
				direct	2974 Jun 05 21:30	29° <del>00</del> 21'34	
conjunction	2966 Aug 17 21:13	25° <del>00</del> 50'12	0°41'02		2974 Jul 14 02:07	0° <del>00</del>	
minimum elong	2966 Aug 17 21:13	25° <del>00</del> 50'12	0°41'01				

max. Earth dist.	2974 Sep 25 08:31	3°♄50'35	19.26972 AU	conjunction	2982 Nov 04 05:27	12°♍11'54	0°26'59
				minimum elong	2982 Nov 04 05:27	12°♍11'54	0°26'59
conjunction	2974 Sep 26 07:19	3°♄54'11	0°43'13	max. Earth dist.	2982 Nov 03 14:52	12°♍09'37	19.39741 AU
minimum elong	2974 Sep 26 07:19	3°♄54'11	0°43'12		2982 Dec 22 05:46	15°♍	
retrograde	2975 Jan 12 11:06	8°♄19'01		retrograde	2983 Feb 19 10:46	16°♍33'04	
opposition	2975 Mar 26 21:24	6°♄16'25	0°47'39		2983 Apr 23 05:59	15°♍	
min. Earth dist.	2975 Mar 27 17:37	6°♄14'13	17.26874 AU	opposition	2983 May 04 12:25	14°♍31'16	0°28'27
direct	2975 Jun 10 23:17	4°♄10'01		min. Earth dist.	2983 May 05 00:57	14°♍29'55	17.41624 AU
				direct	2983 Jul 20 10:53	12°♍25'40	
					2983 Oct 08 20:58	15°♍	
conjunction	2975 Oct 01 11:43	8°♄42'52	0°42'07				
minimum elong	2975 Oct 01 11:44	8°♄42'52	0°42'08				
max. Earth dist.	2975 Sep 30 12:37	8°♄39'13	19.26829 AU	conjunction	2983 Nov 09 05:03	16°♍54'36	0°23'59
retrograde	2976 Jan 17 14:03	13°♄07'34		minimum elong	2983 Nov 09 05:03	16°♍54'36	0°23'59
opposition	2976 Mar 30 22:51	11°♄05'05	0°46'17	max. Earth dist.	2983 Nov 08 15:33	16°♍52'29	19.43634 AU
min. Earth dist.	2976 Mar 31 17:47	11°♄03'01	17.26988 AU	retrograde	2984 Feb 24 08:11	21°♍15'01	
direct	2976 Jun 15 04:01	8°♄58'43		opposition	2984 May 08 13:56	19°♍13'20	0°25'00
				min. Earth dist.	2984 May 09 01:10	19°♍12'08	17.45799 AU
				direct	2984 Jul 24 13:27	17°♍07'58	
conjunction	2976 Oct 05 15:57	13°♄31'38	0°40'45				
minimum elong	2976 Oct 05 15:57	13°♄31'38	0°40'44				
max. Earth dist.	2976 Oct 04 18:24	13°♄28'14	19.27190 AU	conjunction	2984 Nov 13 03:45	21°♍35'51	0°20'49
retrograde	2977 Jan 21 14:01	17°♄56'05		minimum elong	2984 Nov 13 03:45	21°♍35'51	0°20'49
opposition	2977 Apr 05 00:47	15°♄53'44	0°44'34	max. Earth dist.	2984 Nov 12 16:47	21°♍34'09	19.48086 AU
min. Earth dist.	2977 Apr 05 20:02	15°♄51'38	17.27597 AU	retrograde	2985 Feb 28 06:19	25°♍55'29	
direct	2977 Jun 20 06:36	13°♄47'26		opposition	2985 May 13 15:05	23°♍53'58	0°21'24
				min. Earth dist.	2985 May 13 23:55	23°♍53'02	17.50501 AU
				direct	2985 Jul 29 16:56	21°♍48'55	
conjunction	2977 Oct 10 19:41	18°♄20'14	0°39'04				
minimum elong	2977 Oct 10 19:41	18°♄20'14	0°39'05				
max. Earth dist.	2977 Oct 09 21:47	18°♄16'46	19.28055 AU	conjunction	2985 Nov 18 01:38	26°♍15'41	0°17'32
retrograde	2978 Jan 26 15:55	22°♄44'21		minimum elong	2985 Nov 18 01:37	26°♍15'41	0°17'33
opposition	2978 Apr 10 02:43	20°♄42'05	0°42'33	max. Earth dist.	2985 Nov 17 16:17	26°♍14'13	19.53049 AU
min. Earth dist.	2978 Apr 10 20:38	20°♄40'09	17.28707 AU		2986 Jan 28 15:50	0°♂	
direct	2978 Jun 25 11:57	18°♄35'52		retrograde	2986 Mar 05 02:47	0°♂34'30	
					2986 Apr 10 16:38	30°♍	
conjunction	2978 Oct 15 23:02	23°♄08'23	0°37'08	opposition	2986 May 18 15:50	28°♍33'11	0°17'41
minimum elong	2978 Oct 15 23:02	23°♄08'23	0°37'08	min. Earth dist.	2986 May 18 23:38	28°♍32'22	17.55709 AU
max. Earth dist.	2978 Oct 15 03:09	23°♄05'15	19.29405 AU	direct	2986 Aug 03 17:36	26°♍28'28	
retrograde	2979 Jan 31 15:01	27°♄32'04			2986 Nov 08 10:57	0°♂	
opposition	2979 Apr 15 04:53	25°♄29'55	0°40'15				
min. Earth dist.	2979 Apr 15 22:37	25°♄27'59	17.30286 AU	conjunction	2986 Nov 22 22:40	0°♂54'03	0°14'10
direct	2979 Jun 30 15:47	23°♄23'46		minimum elong	2986 Nov 22 22:40	0°♂54'03	0°14'10
max. Earth dist.	2979 Oct 20 05:42	27°♄52'41	19.31233 AU	behind sun begin	2986 Nov 22 19:23	0°♂53'33	
				behind sun end	2986 Nov 23 01:56	0°♂54'33	
conjunction	2979 Oct 21 01:44	27°♄55'51	0°34'56	max. Earth dist.	2986 Nov 22 15:23	0°♂52'55	19.58487 AU
minimum elong	2979 Oct 21 01:44	27°♄55'51	0°34'55	retrograde	2987 Mar 10 00:30	5°♂12'02	
	2979 Nov 24 00:45	0°♍		opposition	2987 May 23 16:10	3°♂10'58	0°13'52
retrograde	2980 Feb 05 15:14	2°♍19'01		min. Earth dist.	2987 May 23 21:26	3°♂10'24	17.61330 AU
opposition	2980 Apr 19 06:53	0°♍16'57	0°37'39	direct	2987 Aug 08 19:31	1°♂06'38	
min. Earth dist.	2980 Apr 19 23:21	0°♍15'10	17.32358 AU				
	2980 Apr 25 20:06	30°♍		conjunction	2987 Nov 27 18:49	5°♂30'57	0°10'44
direct	2980 Jul 04 21:23	28°♄10'54		minimum elong	2987 Nov 27 18:49	5°♂30'57	0°10'44
	2980 Sep 09 06:10	0°♍		behind sun begin	2987 Nov 27 13:43	5°♂30'10	
max. Earth dist.	2980 Oct 24 10:13	2°♍39'37	19.33556 AU	behind sun end	2987 Nov 27 23:56	5°♂31'44	
				max. Earth dist.	2987 Nov 27 13:28	5°♂30'08	19.64290 AU
conjunction	2980 Oct 25 03:53	2°♍42'24	0°32'30	retrograde	2988 Mar 13 20:22	9°♂48'05	
minimum elong	2980 Oct 25 03:53	2°♍42'24	0°32'30	opposition	2988 May 27 16:17	7°♂47'15	0°09'59
retrograde	2981 Feb 09 13:50	7°♍04'57		min. Earth dist.	2988 May 27 20:47	7°♂46'46	17.67301 AU
opposition	2981 Apr 24 09:00	5°♍02'58	0°34'48	direct	2988 Aug 12 19:03	5°♂43'19	
min. Earth dist.	2981 Apr 25 00:31	5°♍01'18	17.34919 AU				
direct	2981 Jul 10 02:07	2°♍57'03		conjunction	2988 Dec 01 14:07	10°♂06'18	0°07'15
max. Earth dist.	2981 Oct 29 11:48	7°♍25'06	19.36382 AU	minimum elong	2988 Dec 01 14:07	10°♂06'18	0°07'15
				behind sun begin	2988 Dec 01 08:03	10°♂05'23	
conjunction	2981 Oct 30 04:57	7°♍27'48	0°29'50	behind sun end	2988 Dec 01 20:11	10°♂07'13	
minimum elong	2981 Oct 30 04:57	7°♍27'48	0°29'50	max. Earth dist.	2988 Dec 01 10:22	10°♂05'45	19.70413 AU
retrograde	2982 Feb 14 12:27	11°♍49'43		retrograde	2989 Mar 18 17:04	14°♂22'34	
opposition	2982 Apr 29 10:54	9°♍47'47	0°31'43	opposition	2989 Jun 01 15:50	12°♂21'57	0°06'04
min. Earth dist.	2982 Apr 30 01:07	9°♍46'16	17.38010 AU	min. Earth dist.	2989 Jun 01 17:39	12°♂21'46	17.73542 AU
direct	2982 Jul 15 06:30	7°♍42'00		direct	2989 Aug 17 19:44	10°♂18'26	

conjunction	2989 Dec 06 08:31	14°♂40'01	0°03'44	retrograde	2996 Apr 18 13:31	15°♂32'02	
minimum elong	2989 Dec 06 08:30	14°♂40'01	0°03'43	opposition	2996 Jul 03 20:01	13°♂32'19	0°-20'-22
behind sun begin	2989 Dec 06 01:58	14°♂39'02		min. Earth dist.	2996 Jul 03 11:45	13°♂33'10	18.19931 AU
behind sun end	2989 Dec 06 15:02	14°♂41'00		direct	2996 Sep 19 01:57	11°♂31'16	
max. Earth dist.	2989 Dec 06 06:55	14°♂39'49	19.76759 AU				
retrograde	2990 Mar 23 11:52	18°♂55'23		conjunction	2997 Jan 05 15:50	15°♂42'00	0°-19'-54
opposition	2990 Jun 06 15:01	16°♂54'59	0°02'08	minimum elong	2997 Jan 05 15:50	15°♂42'00	0°19'56
min. Earth dist.	2990 Jun 06 16:18	16°♂54'51	17.79981 AU	max. Earth dist.	2997 Jan 06 00:56	15°♂43'22	20.23321 AU
direct	2990 Aug 22 18:25	14°♂51'52		retrograde	2997 Apr 23 04:17	19°♂50'49	
				opposition	2997 Jul 08 14:08	17°♂51'10	0°-23'-43
conjunction	2990 Dec 11 02:05	19°♂12'00	0°00'08	min. Earth dist.	2997 Jul 08 03:25	17°♂52'16	18.26695 AU
minimum elong	2990 Dec 11 02:03	19°♂12'00	0°00'08	direct	2997 Sep 23 19:30	15°♂50'26	
behind sun begin	2990 Dec 10 19:36	19°♂11'02					
behind sun end	2990 Dec 11 08:30	19°♂12'58		conjunction	2998 Jan 10 02:58	19°♂59'39	0°-22'-51
max. Earth dist.	2990 Dec 11 01:30	19°♂11'57	19.83273 AU	minimum elong	2998 Jan 10 02:58	19°♂59'39	0°22'52
desc. node	2990 Dec 24 09:51	20°♂01'13		max. Earth dist.	2998 Jan 10 14:53	20°♂01'26	20.30093 AU
retrograde	2991 Mar 28 07:04	23°♂26'27		retrograde	2998 Apr 27 16:21	24°♂07'34	
opposition	2991 Jun 11 13:22	21°♂26'13	0°-1'-47	opposition	2998 Jul 13 07:36	22°♂08'03	0°-26'-54
min. Earth dist.	2991 Jun 11 12:06	21°♂26'21	17.86546 AU	min. Earth dist.	2998 Jul 12 19:49	22°♂09'14	18.33477 AU
direct	2991 Aug 27 18:05	19°♂23'30		direct	2998 Sep 28 11:41	20°♂07'40	
conjunction	2991 Dec 15 18:48	23°♂42'08	0°-3'-27	conjunction	2999 Jan 14 13:12	24°♂15'23	0°-25'-39
minimum elong	2991 Dec 15 18:49	23°♂42'08	0°03'28	minimum elong	2999 Jan 14 13:12	24°♂15'23	0°25'41
behind sun begin	2991 Dec 15 12:17	23°♂41'09		max. Earth dist.	2999 Jan 15 01:41	24°♂17'15	20.36878 AU
behind sun end	2991 Dec 16 01:21	23°♂43'07		retrograde	2999 May 02 06:06	28°♂22'29	
max. Earth dist.	2991 Dec 15 20:32	23°♂42'21	19.89876 AU	min. Earth dist.	2999 Jul 17 10:22	26°♂24'29	18.40260 AU
retrograde	2992 Apr 01 00:01	27°♂55'39		opposition	2999 Jul 18 00:16	26°♂23'04	0°-29'-55
opposition	2992 Jun 15 11:29	25°♂55'35	0°-5'-40	direct	2999 Oct 03 02:52	24°♂23'04	
min. Earth dist.	2992 Jun 15 09:41	25°♂55'46	17.93183 AU				
direct	2992 Aug 31 16:23	23°♂53'15		conjunction	3000 Jan 18 22:54	28°♂29'21	0°-28'-18
				minimum elong	3000 Jan 18 22:54	28°♂29'21	0°28'19
conjunction	2992 Dec 19 10:25	28°♂10'20	0°-6'-54	max. Earth dist.	3000 Jan 19 14:05	28°♂31'37	20.43633 AU
minimum elong	2992 Dec 19 10:25	28°♂10'19	0°06'55		3000 Feb 13 18:42	0°≈	
behind sun begin	2992 Dec 19 04:18	28°♂09'25		retrograde	3000 May 06 17:44	2°≈35'40	
behind sun end	2992 Dec 19 16:32	28°♂11'14		opposition	3000 Jul 22 16:23	0°≈36'23	0°-32'-44
max. Earth dist.	2992 Dec 19 12:56	28°♂10'41	19.96538 AU	min. Earth dist.	3000 Jul 22 01:25	0°≈37'54	18.46976 AU
	2993 Jan 19 03:16	0°♂			3000 Aug 06 21:36	30°♂	
retrograde	2993 Apr 05 17:29	2°♂22'54		direct	3000 Oct 07 17:38	28°♂36'47	
opposition	2993 Jun 20 08:43	0°♂22'57	0°-9'-29		3000 Dec 05 00:38	0°≈	
min. Earth dist.	2993 Jun 20 04:22	0°♂23'24	17.99854 AU				
	2993 Jun 29 16:29	30°♂		conjunction	3001 Jan 23 07:40	2°≈41'40	0°-30'-46
direct	2993 Sep 05 14:38	28°♂20'57		minimum elong	3001 Jan 23 07:40	2°≈41'39	0°30'47
	2993 Nov 08 05:50	0°♂		max. Earth dist.	3001 Jan 23 23:15	2°≈43'59	20.50299 AU
				retrograde	3001 May 11 06:30	6°≈47'16	
conjunction	2993 Dec 24 01:19	2°♂36'28	0°-10'-18	opposition	3001 Jul 27 07:46	4°≈48'07	0°-35'-23
minimum elong	2993 Dec 24 01:19	2°♂36'28	0°10'18	min. Earth dist.	3001 Jul 26 15:12	4°≈49'47	18.53580 AU
behind sun begin	2993 Dec 23 20:05	2°♂35'41		direct	3001 Oct 12 06:33	2°≈48'53	
behind sun end	2993 Dec 24 06:34	2°♂37'15					
max. Earth dist.	2993 Dec 24 06:15	2°♂37'12	20.03210 AU	conjunction	3002 Jan 27 16:10	6°≈52'27	0°-33'-4
retrograde	2994 Apr 10 08:30	6°♂48'05		minimum elong	3002 Jan 27 16:09	6°≈52'27	0°33'05
opposition	2994 Jun 25 05:12	4°♂48'14	0°-13'-14	max. Earth dist.	3002 Jan 28 10:05	6°≈55'06	20.56804 AU
min. Earth dist.	2994 Jun 25 00:19	4°♂48'44	18.06530 AU	retrograde	3002 May 15 17:23	10°≈57'21	
direct	2994 Sep 10 11:18	2°♂46'34		opposition	3002 Jul 31 22:20	8°≈58'21	0°-37'-49
				min. Earth dist.	3002 Jul 31 04:56	9°≈00'06	18.59977 AU
conjunction	2994 Dec 28 15:06	7°♂00'29	0°-13'-36	direct	3002 Oct 16 20:13	6°≈59'30	
minimum elong	2994 Dec 28 15:06	7°♂00'29	0°13'37				
behind sun begin	2994 Dec 28 11:25	6°♂59'56		conjunction	3003 Jan 31 23:55	11°≈01'47	0°-35'-11
behind sun end	2994 Dec 28 18:48	7°♂01'02		minimum elong	3003 Jan 31 23:55	11°≈01'47	0°35'11
max. Earth dist.	2994 Dec 28 20:41	7°♂01'19	20.09895 AU	max. Earth dist.	3003 Feb 01 17:49	11°≈04'26	20.63079 AU
retrograde	2995 Apr 15 00:16	11°♂11'08			3003 May 04 17:30	15°≈	
opposition	2995 Jun 30 00:54	9°♂11'21	0°-16'-52	retrograde	3003 May 20 05:14	15°≈06'04	
min. Earth dist.	2995 Jun 29 17:32	9°♂12'07	18.13220 AU		3003 Jun 04 21:35	15°♂	
direct	2995 Sep 15 07:32	7°♂09'59		opposition	3003 Aug 05 12:27	13°≈07'11	0°-40'-2
				min. Earth dist.	3003 Aug 04 17:59	13°≈09'03	18.66125 AU
conjunction	2996 Jan 02 03:57	11°♂22'19	0°-16'-49	direct	3003 Oct 21 07:18	11°≈08'42	
minimum elong	2996 Jan 02 03:57	11°♂22'19	0°16'50		3004 Feb 02 13:00	15°≈	
max. Earth dist.	2996 Jan 02 12:17	11°♂23'34	20.16587 AU				

conjunction	3004 Feb 05 07:16	15° <del>22</del> 09'46	0°-37'-6	conjunction	3012 Mar 08 03:29	17° <del>11</del> 29'28	0°-44'-52
minimum elong	3004 Feb 05 07:16	15° <del>22</del> 09'46	0°37'08	minimum elong	3012 Mar 08 03:29	17° <del>11</del> 29'28	0°44'52
max. Earth dist.	3004 Feb 06 03:12	15° <del>22</del> 12'42	20.69061 AU	max. Earth dist.	3012 Mar 09 03:33	17° <del>11</del> 32'56	21.02514 AU
retrograde	3004 May 23 15:25	19° <del>22</del> 13'27		retrograde	3012 Jun 25 15:39	21° <del>11</del> 29'59	
min. Earth dist.	3004 Aug 08 06:44	17° <del>22</del> 16'37	18.71935 AU	opposition	3012 Sep 11 15:24	19° <del>11</del> 31'10	0°-49'-36
opposition	3004 Aug 09 01:58	17° <del>22</del> 14'41	0°-42'-2	min. Earth dist.	3012 Sep 10 16:28	19° <del>11</del> 33'27	19.03864 AU
direct	3004 Oct 24 19:50	15° <del>22</del> 16'32		direct	3012 Nov 26 17:53	17° <del>11</del> 34'33	
conjunction	3005 Feb 08 14:07	19° <del>22</del> 16'27	0°-38'-49	conjunction	3013 Mar 12 07:49	21° <del>11</del> 27'40	0°-44'-52
minimum elong	3005 Feb 08 14:07	19° <del>22</del> 16'27	0°38'49	minimum elong	3013 Mar 12 07:49	21° <del>11</del> 27'40	0°44'53
max. Earth dist.	3005 Feb 09 09:40	19° <del>22</del> 19'19	20.74682 AU	max. Earth dist.	3013 Mar 13 07:06	21° <del>11</del> 31'01	21.05044 AU
retrograde	3005 May 28 02:28	23° <del>22</del> 19'35		retrograde	3013 Jun 29 22:30	25° <del>11</del> 28'03	
opposition	3005 Aug 13 14:44	21° <del>22</del> 20'53	0°-43'-49	opposition	3013 Sep 15 23:41	23° <del>11</del> 29'13	0°-49'-28
min. Earth dist.	3005 Aug 12 19:00	21° <del>22</del> 22'52	18.77369 AU	min. Earth dist.	3013 Sep 15 01:14	23° <del>11</del> 31'28	19.06222 AU
direct	3005 Oct 29 05:43	19° <del>22</del> 23'01		direct	3013 Nov 30 23:11	21° <del>11</del> 32'45	
conjunction	3006 Feb 12 20:44	23° <del>22</del> 21'51	0°-40'-20	conjunction	3014 Mar 16 12:19	25° <del>11</del> 25'26	0°-44'-39
minimum elong	3006 Feb 12 20:44	23° <del>22</del> 21'51	0°40'22	minimum elong	3014 Mar 16 12:19	25° <del>11</del> 25'26	0°44'39
max. Earth dist.	3006 Feb 13 17:50	23° <del>22</del> 24'56	20.79891 AU	max. Earth dist.	3014 Mar 17 12:45	25° <del>11</del> 28'57	21.07210 AU
retrograde	3006 Jun 01 11:47	27° <del>22</del> 24'27		retrograde	3014 Jul 04 06:56	29° <del>11</del> 25'44	
min. Earth dist.	3006 Aug 17 06:33	25° <del>22</del> 27'51	18.82352 AU	min. Earth dist.	3014 Sep 19 08:39	27° <del>11</del> 29'13	19.08184 AU
opposition	3006 Aug 18 02:54	25° <del>22</del> 25'48	0°-45'-22	opposition	3014 Sep 20 07:39	27° <del>11</del> 26'55	0°-49'-7
direct	3006 Nov 02 16:47	23° <del>22</del> 28'12		direct	3014 Dec 05 05:58	25° <del>11</del> 30'36	
conjunction	3007 Feb 17 02:38	27° <del>22</del> 25'58	0°-41'-38	conjunction	3015 Mar 20 16:32	29° <del>11</del> 22'55	0°-44'-13
minimum elong	3007 Feb 17 02:38	27° <del>22</del> 25'58	0°41'39	minimum elong	3015 Mar 20 16:32	29° <del>11</del> 22'55	0°44'15
max. Earth dist.	3007 Feb 17 23:07	27° <del>22</del> 28'58	20.84651 AU	max. Earth dist.	3015 Mar 21 15:57	29° <del>11</del> 26'16	21.08971 AU
	3007 Apr 05 17:40	0° <del>22</del>			3015 Mar 31 12:23	0° <del>22</del>	
retrograde	3007 Jun 05 21:52	1° <del>22</del> 28'07		retrograde	3015 Jul 08 13:52	3° <del>22</del> 23'14	
	3007 Aug 09 17:12	30° <del>22</del>		opposition	3015 Sep 24 15:32	1° <del>22</del> 24'24	0°-48'-31
opposition	3007 Aug 22 14:32	29° <del>22</del> 29'28	0°-46'-41	min. Earth dist.	3015 Sep 23 17:20	1° <del>22</del> 26'37	19.09737 AU
min. Earth dist.	3007 Aug 21 17:56	29° <del>22</del> 31'31	18.86898 AU		3015 Nov 03 00:06	30° <del>22</del>	
direct	3007 Nov 07 01:52	27° <del>22</del> 32'03		direct	3015 Dec 09 10:16	29° <del>11</del> 28'12	
	3008 Jan 26 07:24	0° <del>22</del>			3016 Jan 13 21:39	0° <del>22</del>	
conjunction	3008 Feb 21 08:21	1° <del>22</del> 28'51	0°-42'-43	conjunction	3016 Mar 23 21:13	3° <del>22</del> 20'16	0°-43'-35
minimum elong	3008 Feb 21 08:21	1° <del>22</del> 28'51	0°42'45	minimum elong	3016 Mar 23 21:13	3° <del>22</del> 20'16	0°43'37
max. Earth dist.	3008 Feb 22 06:24	1° <del>22</del> 32'04	20.88976 AU	max. Earth dist.	3016 Mar 24 21:27	3° <del>22</del> 23'44	21.10299 AU
retrograde	3008 Jun 09 06:21	5° <del>22</del> 30'32		retrograde	3016 Jul 11 21:57	7° <del>22</del> 20'38	
min. Earth dist.	3008 Aug 25 04:07	3° <del>22</del> 34'00	18.91011 AU	opposition	3016 Sep 27 22:59	5° <del>22</del> 21'48	0°-47'-42
opposition	3008 Aug 26 01:26	3° <del>22</del> 31'52	0°-47'-45	min. Earth dist.	3016 Sep 27 00:33	5° <del>22</del> 24'03	19.10823 AU
direct	3008 Nov 10 11:32	1° <del>22</del> 34'39		direct	3016 Dec 12 16:44	3° <del>22</del> 25'42	
conjunction	3009 Feb 24 13:26	5° <del>22</del> 30'31	0°-43'-35	conjunction	3017 Mar 28 01:57	7° <del>22</del> 17'35	0°-42'-45
minimum elong	3009 Feb 24 13:26	5° <del>22</del> 30'31	0°43'37	minimum elong	3017 Mar 28 01:57	7° <del>22</del> 17'35	0°42'46
max. Earth dist.	3009 Feb 25 10:58	5° <del>22</del> 33'38	20.92892 AU	max. Earth dist.	3017 Mar 29 00:39	7° <del>22</del> 20'50	21.11138 AU
retrograde	3009 Jun 13 15:18	9° <del>22</del> 31'49		retrograde	3017 Jul 16 05:35	11° <del>22</del> 18'05	
opposition	3009 Aug 30 11:47	7° <del>22</del> 33'05	0°-48'-34	min. Earth dist.	3017 Oct 01 09:18	9° <del>22</del> 21'20	19.11403 AU
min. Earth dist.	3009 Aug 29 14:24	7° <del>22</del> 35'14	18.94747 AU	opposition	3017 Oct 02 06:24	9° <del>22</del> 19'13	0°-46'-39
direct	3009 Nov 14 19:31	5° <del>22</del> 36'01		direct	3017 Dec 16 20:39	7° <del>22</del> 23'10	
conjunction	3010 Feb 28 18:27	9° <del>22</del> 31'04	0°-44'-14	conjunction	3018 Apr 01 07:04	11° <del>22</del> 14'59	0°-41'-43
minimum elong	3010 Feb 28 18:27	9° <del>22</del> 31'04	0°44'15	minimum elong	3018 Apr 01 07:04	11° <del>22</del> 14'59	0°41'44
max. Earth dist.	3010 Mar 01 17:32	9° <del>22</del> 34'25	20.96436 AU	max. Earth dist.	3018 Apr 02 06:06	11° <del>22</del> 18'16	21.11436 AU
retrograde	3010 Jun 17 23:22	13° <del>22</del> 32'02		retrograde	3018 Jul 20 13:22	15° <del>22</del> 15'37	
opposition	3010 Sep 03 21:20	11° <del>22</del> 33'16	0°-49'-9	opposition	3018 Oct 06 13:29	13° <del>22</del> 16'44	0°-45'-24
min. Earth dist.	3010 Sep 02 23:08	11° <del>22</del> 35'29	18.98115 AU	min. Earth dist.	3018 Oct 05 16:26	13° <del>22</del> 18'50	19.11408 AU
direct	3010 Nov 19 03:48	9° <del>22</del> 36'21		direct	3018 Dec 21 02:51	11° <del>22</del> 20'42	
conjunction	3011 Mar 04 23:01	13° <del>22</del> 30'40	0°-44'-40	conjunction	3019 Apr 05 12:20	15° <del>22</del> 12'30	0°-40'-28
minimum elong	3011 Mar 04 23:01	13° <del>22</del> 30'40	0°44'41	minimum elong	3019 Apr 05 12:20	15° <del>22</del> 12'30	0°40'29
max. Earth dist.	3011 Mar 05 21:33	13° <del>22</del> 33'55	20.99639 AU	max. Earth dist.	3019 Apr 06 09:26	15° <del>22</del> 15'30	21.11155 AU
retrograde	3011 Jun 22 07:10	17° <del>22</del> 31'22		retrograde	3019 Jul 24 21:18	19° <del>22</del> 13'21	
min. Earth dist.	3011 Sep 07 08:31	15° <del>22</del> 34'47	19.01163 AU	opposition	3019 Oct 10 20:42	17° <del>22</del> 14'22	0°-43'-55
opposition	3011 Sep 08 06:40	15° <del>22</del> 32'34	0°-49'-30	min. Earth dist.	3019 Oct 10 01:16	17° <del>22</del> 16'18	19.10836 AU
direct	3011 Nov 23 10:35	13° <del>22</del> 35'48		direct	3019 Dec 25 06:49	15° <del>22</del> 18'18	



conjunction	2020 Apr 08 17:57	19°♈10'10	0°-39'-2	min. Earth dist.	2027 Nov 11 15:18	19°♏10'01	18.89253 AU
minimum elong	2020 Apr 08 17:57	19°♈10'10	0°39'03	direct	2028 Jan 25 23:50	17°♏11'34	
max. Earth dist.	2020 Apr 09 15:10	19°♈13'11	21.10292 AU				
retrograde	2020 Jul 28 05:16	23°♈11'14		conjunction	2028 May 11 04:06	21°♏07'13	0°-21'-23
min. Earth dist.	2020 Oct 13 08:19	21°♈14'04	19.09671 AU	minimum elong	2028 May 11 04:06	21°♏07'13	0°21'24
opposition	2020 Oct 14 03:35	21°♈12'08	0°-42'-13	max. Earth dist.	2028 May 11 17:12	21°♏09'06	20.87151 AU
direct	2020 Dec 28 12:56	19°♈15'59		retrograde	2028 Aug 30 04:51	25°♏12'09	
				opposition	2028 Nov 15 10:08	23°♏11'59	0°-22'-3
conjunction	2021 Apr 12 23:46	23°♈07'59	0°-37'-24	min. Earth dist.	2028 Nov 14 22:51	23°♏13'09	18.84966 AU
minimum elong	2021 Apr 12 23:47	23°♈07'59	0°37'25	direct	2029 Jan 29 06:18	21°♏14'32	
max. Earth dist.	2021 Apr 13 18:58	23°♈10'43	21.08855 AU				
retrograde	2021 Aug 01 12:53	27°♈09'21		conjunction	2029 May 15 13:59	25°♏11'06	0°-18'-33
opposition	2021 Oct 18 10:19	25°♈10'05	0°-40'-19	minimum elong	2029 May 15 13:59	25°♏11'06	0°18'34
min. Earth dist.	2021 Oct 17 16:54	25°♈11'51	19.07970 AU	max. Earth dist.	2029 May 16 00:41	25°♏12'37	20.82698 AU
direct	2022 Jan 01 16:56	23°♈13'49		retrograde	2029 Sep 03 15:10	29°♏16'46	
				opposition	2029 Nov 19 17:45	27°♏16'30	0°-18'-51
conjunction	2022 Apr 17 06:00	27°♈06'03	0°-35'-36	min. Earth dist.	2029 Nov 19 08:50	27°♏17'25	18.80342 AU
minimum elong	2022 Apr 17 06:00	27°♈06'03	0°35'37	direct	2030 Feb 02 11:29	25°♏18'50	
max. Earth dist.	2022 Apr 18 01:19	27°♈08'48	21.06910 AU				
	2022 Jun 12 22:02	0°♏		conjunction	2030 May 20 00:47	29°♏16'24	0°-15'-36
retrograde	2022 Aug 05 21:16	1°♏07'44		minimum elong	2030 May 20 00:47	29°♏16'24	0°15'37
	2022 Sep 30 15:04	30°♏♈		behind sun begin	2030 May 19 23:32	29°♏16'14	
opposition	2022 Oct 22 16:56	29°♈08'19	0°-38'-13	behind sun end	2030 May 20 02:02	29°♏16'35	
min. Earth dist.	2022 Oct 21 23:35	29°♈10'04	19.05783 AU	max. Earth dist.	2030 May 20 10:46	29°♏17'50	20.77902 AU
direct	2023 Jan 05 23:00	27°♈11'54			2030 Jun 01 16:48	0°♐	
	2023 Apr 02 11:04	0°♏		retrograde	2030 Sep 08 04:09	3°♐22'50	
conjunction	2023 Apr 21 12:14	1°♏04'27	0°-33'-37	opposition	2030 Nov 24 01:41	1°♐22'29	0°-15'-32
minimum elong	2023 Apr 21 12:14	1°♏04'27	0°33'38	min. Earth dist.	2030 Nov 23 17:20	1°♐23'21	18.75349 AU
max. Earth dist.	2023 Apr 22 05:44	1°♏06'56	21.04510 AU		2030 Dec 30 22:54	30°♏♏	
retrograde	2023 Aug 10 04:54	5°♏06'33		direct	2031 Feb 06 19:17	29°♏24'36	
opposition	2023 Oct 26 23:42	3°♏06'57	0°-35'-56		2031 Mar 15 21:38	0°♐	
min. Earth dist.	2023 Oct 26 08:06	3°♏08'32	19.03181 AU	conjunction	2031 May 24 12:14	3°♐23'13	0°-12'-33
direct	2024 Jan 10 03:00	1°♏10'22		minimum elong	2031 May 24 12:14	3°♐23'13	0°12'34
				behind sun begin	2031 May 24 07:59	3°♐22'37	
conjunction	2024 Apr 24 19:14	5°♏03'21	0°-31'-27	behind sun end	2031 May 24 16:28	3°♐23'49	
minimum elong	2024 Apr 24 19:14	5°♏03'21	0°31'28	max. Earth dist.	2031 May 24 19:34	3°♐24'16	20.72714 AU
max. Earth dist.	2024 Apr 25 12:51	5°♏05'51	21.01717 AU	retrograde	2031 Sep 12 15:24	7°♐30'28	
retrograde	2024 Aug 13 14:06	9°♏05'53		opposition	2031 Nov 28 10:15	5°♐29'59	0°-12'-6
opposition	2024 Oct 30 06:10	7°♏06'09	0°-33'-28	min. Earth dist.	2031 Nov 28 04:36	5°♐30'34	18.69960 AU
min. Earth dist.	2024 Oct 29 14:40	7°♏07'43	19.00198 AU	direct	2032 Feb 11 01:13	3°♐31'50	
direct	2025 Jan 13 09:02	5°♏09'24					
				conjunction	2032 May 28 00:50	7°♐31'34	0°-9'-26
conjunction	2025 Apr 29 02:34	9°♏02'54	0°-29'-9	minimum elong	2032 May 28 00:50	7°♐31'34	0°09'27
minimum elong	2025 Apr 29 02:34	9°♏02'54	0°29'11	behind sun begin	2032 May 27 19:16	7°♐30'47	
max. Earth dist.	2025 Apr 29 18:08	9°♏05'07	20.98560 AU	behind sun end	2032 May 28 06:24	7°♐32'21	
retrograde	2025 Aug 17 22:09	13°♏05'57		max. Earth dist.	2032 May 28 06:57	7°♐32'26	20.67124 AU
opposition	2025 Nov 03 12:58	11°♏06'05	0°-30'-51	retrograde	2032 Sep 16 06:00	11°♐39'37	
min. Earth dist.	2025 Nov 02 23:19	11°♏07'29	18.96872 AU	opposition	2032 Dec 01 18:56	9°♐38'59	0°-8'-36
direct	2026 Jan 17 13:10	9°♏09'09		min. Earth dist.	2032 Dec 01 14:05	9°♐39'29	18.64157 AU
				direct	2033 Feb 14 10:45	7°♐40'30	
conjunction	2026 May 03 10:27	13°♏03'17	0°-26'-42				
minimum elong	2026 May 03 10:27	13°♏03'17	0°26'42	conjunction	2033 Jun 01 14:07	11°♐41'26	0°-6'-14
max. Earth dist.	2026 May 04 01:59	13°♏05'30	20.95072 AU	minimum elong	2033 Jun 01 14:07	11°♐41'26	0°06'15
	2026 Jun 07 20:34	15°♏		behind sun begin	2033 Jun 01 07:46	11°♐40'32	
retrograde	2026 Aug 22 08:17	17°♏06'54		behind sun end	2033 Jun 01 20:28	11°♐42'19	
opposition	2026 Nov 07 19:45	15°♏06'55	0°-28'-3	max. Earth dist.	2033 Jun 01 17:24	11°♐41'52	20.61124 AU
min. Earth dist.	2026 Nov 07 06:09	15°♏08'19	18.93215 AU	retrograde	2033 Sep 20 17:37	15°♐50'17	
	2026 Nov 10 15:38	15°♏♏		opposition	2033 Dec 06 04:20	13°♐49'28	0°-5'-1
direct	2027 Jan 21 19:12	13°♏09'50		min. Earth dist.	2033 Dec 06 02:15	13°♐49'42	18.57972 AU
	2027 Mar 30 16:10	15°♏		direct	2034 Feb 18 17:56	11°♐50'37	
conjunction	2027 May 07 18:51	17°♏04'40	0°-24'-6	conjunction	2034 Jun 06 04:07	15°♐52'46	0°-2'-59
minimum elong	2027 May 07 18:51	17°♏04'40	0°24'08	minimum elong	2034 Jun 06 04:06	15°♐52'46	0°03'01
max. Earth dist.	2027 May 08 08:16	17°♏06'35	20.91264 AU	behind sun begin	2034 Jun 05 21:24	15°♐51'49	
retrograde	2027 Aug 26 17:24	21°♏08'56		behind sun end	2034 Jun 06 10:48	15°♐53'42	
opposition	2027 Nov 12 02:53	19°♏08'50	0°-25'-7	max. Earth dist.	2034 Jun 06 06:09	15°♐53'00	20.54778 AU

retrograde	3034 Sep 25 08:56	20°II02'27		conjunction	3041 Jul 07 05:49	15°☾57'25	0°19'52
opposition	3034 Dec 10 13:59	18°II01'26	0°-1'-23	minimum elong	3041 Jul 07 05:49	15°☾57'25	0°19'51
min. Earth dist.	3034 Dec 10 12:35	18°II01'34	18.51467 AU	max. Earth dist.	3041 Jul 06 19:43	15°☾55'55	20.06494 AU
direct	3035 Feb 23 05:00	16°II02'11		retrograde	3041 Oct 25 22:08	20°☾13'19	
asc. node	3035 May 01 02:00	17°II50'35		opposition	3042 Jan 09 00:43	18°☾11'06	0°23'45
				min. Earth dist.	3042 Jan 09 10:02	18°☾10'06	18.03102 AU
conjunction	3035 Jun 10 18:55	20°II05'35	0°00'23	direct	3042 Mar 24 17:35	16°☾08'59	
minimum elong	3035 Jun 10 18:56	20°II05'35	0°00'23				
behind sun begin	3035 Jun 10 12:13	20°II04'38		conjunction	3042 Jul 12 02:35	20°☾22'47	0°22'53
behind sun end	3035 Jun 11 01:38	20°II06'32		minimum elong	3042 Jul 12 02:35	20°☾22'47	0°22'53
max. Earth dist.	3035 Jun 10 18:27	20°II05'33	20.48142 AU	max. Earth dist.	3042 Jul 11 14:42	20°☾21'01	19.99774 AU
retrograde	3035 Sep 29 21:22	24°II16'07		retrograde	3042 Oct 30 17:18	24°☾39'39	
opposition	3035 Dec 15 00:09	22°II14'52	0°02'16	opposition	3043 Jan 13 15:10	22°☾37'21	0°27'03
min. Earth dist.	3035 Dec 15 01:24	22°II14'44	18.44723 AU	min. Earth dist.	3043 Jan 14 01:03	22°☾36'18	17.96443 AU
direct	3036 Feb 27 13:44	20°II15'11		direct	3043 Mar 29 09:35	20°☾34'54	
				max. Earth dist.	3043 Jul 16 11:33	24°☾48'23	19.93161 AU
conjunction	3036 Jun 14 10:41	24°II19'56	0°03'45				
minimum elong	3036 Jun 14 10:41	24°II19'56	0°03'45	conjunction	3043 Jul 17 00:36	24°☾50'21	0°25'47
behind sun begin	3036 Jun 14 04:00	24°II18'59		minimum elong	3043 Jul 17 00:36	24°☾50'21	0°25'48
behind sun end	3036 Jun 14 17:21	24°II20'53		retrograde	3043 Nov 04 12:03	29°☾08'07	
max. Earth dist.	3036 Jun 14 08:53	24°II19'43	20.41313 AU	opposition	3044 Jan 18 06:26	27°☾05'47	0°30'13
retrograde	3036 Oct 03 13:14	28°II31'19		min. Earth dist.	3044 Jan 18 18:27	27°☾04'30	17.89891 AU
opposition	3036 Dec 18 10:41	26°II29'51	0°05'56	direct	3044 Apr 02 01:18	25°☾03'00	
min. Earth dist.	3036 Dec 18 12:30	26°II29'40	18.37814 AU				
direct	3037 Mar 03 02:00	24°II29'44		conjunction	3044 Jul 20 23:29	29°☾20'04	0°28'34
				minimum elong	3044 Jul 20 23:29	29°☾20'04	0°28'33
conjunction	3037 Jun 19 03:08	28°II35'53	0°07'03	max. Earth dist.	3044 Jul 20 08:01	29°☾17'45	19.86662 AU
minimum elong	3037 Jun 19 03:07	28°II35'53	0°07'03		3044 Aug 01 00:55	0°♂	
behind sun begin	3037 Jun 18 20:54	28°II34'59		retrograde	3044 Nov 08 08:43	3°♂38'44	
behind sun end	3037 Jun 19 09:21	28°II36'46		opposition	3045 Jan 21 22:28	1°♂36'21	0°33'14
max. Earth dist.	3037 Jun 18 23:09	28°II35'19	20.34338 AU	min. Earth dist.	3045 Jan 22 11:22	1°♂34'58	17.83444 AU
	3037 Jul 13 10:01	0°☾			3045 Mar 05 15:35	30°♂☾	
retrograde	3037 Oct 08 02:50	2°☾48'07		direct	3045 Apr 06 19:28	29°☾33'13	
opposition	3037 Dec 22 21:52	0°☾46'28	0°09'36		3045 May 08 13:55	0°♂	
min. Earth dist.	3037 Dec 23 02:07	0°☾46'01	18.30808 AU				
	3038 Jan 10 16:15	30°♂II		conjunction	3045 Jul 25 23:12	3°♂51'53	0°31'11
direct	3038 Mar 07 12:15	28°II45'54		minimum elong	3045 Jul 25 23:12	3°♂51'53	0°31'12
	3038 Apr 30 19:49	0°☾		max. Earth dist.	3045 Jul 25 06:49	3°♂49'25	19.80245 AU
				retrograde	3045 Nov 13 04:51	8°♂11'23	
conjunction	3038 Jun 23 20:27	2°☾53'29	0°10'19	opposition	3046 Jan 26 15:26	6°♂08'57	0°36'04
minimum elong	3038 Jun 23 20:27	2°☾53'29	0°10'20	min. Earth dist.	3046 Jan 27 06:11	6°♂07'21	17.77084 AU
behind sun begin	3038 Jun 23 15:10	2°☾52'44		direct	3046 Apr 11 13:11	4°♂05'27	
behind sun end	3038 Jun 24 01:44	2°☾54'15					
max. Earth dist.	3038 Jun 23 15:07	2°☾52'43	20.27320 AU	conjunction	3046 Jul 30 23:39	8°♂25'39	0°33'38
retrograde	3038 Oct 12 19:43	7°☾06'38		minimum elong	3046 Jul 30 23:39	8°♂25'39	0°33'38
opposition	3038 Dec 27 09:31	5°☾04'47	0°13'14	max. Earth dist.	3046 Jul 30 04:40	8°♂22'46	19.73951 AU
min. Earth dist.	3038 Dec 27 14:08	5°☾04'17	18.23788 AU	retrograde	3046 Nov 18 02:48	12°♂45'57	
direct	3039 Mar 12 01:27	3°☾03'48		opposition	3047 Jan 31 08:58	10°♂43'25	0°38'42
				min. Earth dist.	3047 Feb 01 00:44	10°♂41'42	17.70870 AU
conjunction	3039 Jun 28 14:35	7°☾12'52	0°13'34	direct	3047 Apr 16 08:52	8°♂39'32	
minimum elong	3039 Jun 28 14:35	7°☾12'52	0°13'33	max. Earth dist.	3047 Aug 04 05:30	12°♂58'16	19.67807 AU
behind sun begin	3039 Jun 28 11:00	7°☾12'21					
behind sun end	3039 Jun 28 18:10	7°☾13'23		conjunction	3047 Aug 05 01:00	13°♂01'15	0°35'53
max. Earth dist.	3039 Jun 28 07:30	7°☾11'50	20.20301 AU	minimum elong	3047 Aug 05 01:00	13°♂01'15	0°35'53
retrograde	3039 Oct 17 11:00	11°☾26'55			3047 Sep 07 13:50	15°♂	
opposition	3039 Dec 31 21:59	9°☾24'55	0°16'49	retrograde	3047 Nov 23 00:34	17°♂22'15	
min. Earth dist.	3040 Jan 01 04:49	9°☾24'11	18.16797 AU	opposition	3048 Feb 05 03:21	15°♂19'38	0°41'05
direct	3040 Mar 15 13:25	7°☾23'31		min. Earth dist.	3048 Feb 05 20:34	15°♂17'46	17.64822 AU
					3048 Feb 12 16:15	15°♂♂	
conjunction	3040 Jul 02 09:45	11°☾34'08	0°16'45	direct	3048 Apr 20 04:31	13°♂15'22	
minimum elong	3040 Jul 02 09:45	11°☾34'08	0°16'45		3048 Jun 24 00:15	15°♂	
max. Earth dist.	3040 Jul 02 01:03	11°☾32'52	20.13352 AU	max. Earth dist.	3048 Aug 08 04:51	17°♂35'08	19.61877 AU
retrograde	3040 Oct 21 05:00	15°☾49'07					
opposition	3041 Jan 04 10:51	13°☾46'59	0°20'19	conjunction	3048 Aug 09 02:50	17°♂38'30	0°37'55
min. Earth dist.	3041 Jan 04 18:07	13°☾46'12	18.09894 AU	minimum elong	3048 Aug 09 02:50	17°♂38'30	0°37'55
direct	3041 Mar 20 03:44	11°☾45'12		retrograde	3048 Nov 26 23:12	22°♂00'11	
				opposition	3049 Feb 08 22:20	19°♂57'27	0°43'14

min. Earth dist.	3049 Feb 09 16:34	19° $\Omega$ 55'28	17.59034 AU	min. Earth dist.	3057 Mar 19 02:51	27° $\mathbb{M}$ 41'59	17.29429 AU
direct	3049 Apr 25 01:16	17° $\Omega$ 52'48		direct	3057 Jun 02 03:08	25° $\mathbb{M}$ 37'54	
max. Earth dist.	3049 Aug 13 07:27	22° $\Omega$ 13'56	19.56231 AU		3057 Sep 19 21:34	0° $\underline{\Omega}$	
conjunction	3049 Aug 14 05:21	22° $\Omega$ 17'18	0°39'42	conjunction	3057 Sep 22 12:27	0° $\underline{\Omega}$ 09'53	0°43'55
minimum elong	3049 Aug 14 05:20	22° $\Omega$ 17'18	0°39'41	minimum elong	3057 Sep 22 12:27	0° $\underline{\Omega}$ 09'53	0°43'56
retrograde	3049 Dec 01 22:06	26° $\Omega$ 39'34		max. Earth dist.	3057 Sep 21 12:32	0° $\underline{\Omega}$ 06'08	19.28752 AU
opposition	3050 Feb 13 18:05	24° $\Omega$ 36'44	0°45'06	retrograde	3058 Jan 08 20:46	4° $\underline{\Omega}$ 34'37	
min. Earth dist.	3050 Feb 14 13:04	24° $\Omega$ 34'40	17.53559 AU	opposition	3058 Mar 23 06:20	2° $\underline{\Omega}$ 31'52	0°48'35
direct	3050 Apr 29 22:55	22° $\Omega$ 31'44		min. Earth dist.	3058 Mar 24 02:11	2° $\underline{\Omega}$ 29'42	17.28288 AU
max. Earth dist.	3050 Aug 18 08:09	26° $\Omega$ 53'48	19.50945 AU	direct	3058 Jun 07 07:21	0° $\underline{\Omega}$ 25'28	
conjunction	3050 Aug 19 08:02	26° $\Omega$ 57'29	0°41'14	conjunction	3058 Sep 27 16:58	4° $\underline{\Omega}$ 57'52	0°43'06
minimum elong	3050 Aug 19 08:01	26° $\Omega$ 57'29	0°41'15	minimum elong	3058 Sep 27 16:58	4° $\underline{\Omega}$ 57'52	0°43'07
	3050 Oct 12 10:00	0° $\mathbb{M}$		max. Earth dist.	3058 Sep 26 17:42	4° $\underline{\Omega}$ 54'12	19.27866 AU
retrograde	3050 Dec 06 20:35	1° $\mathbb{M}$ 20'19		retrograde	3059 Jan 13 20:58	9° $\underline{\Omega}$ 22'33	
	3051 Feb 02 00:42	30° $\mathbb{R}$ $\Omega$		opposition	3059 Mar 28 07:28	7° $\underline{\Omega}$ 19'56	0°47'30
opposition	3051 Feb 18 14:28	29° $\Omega$ 17'22	0°46'40	min. Earth dist.	3059 Mar 29 04:07	7° $\underline{\Omega}$ 17'40	17.27659 AU
min. Earth dist.	3051 Feb 19 10:24	29° $\Omega$ 15'11	17.48488 AU	direct	3059 Jun 12 09:37	5° $\underline{\Omega}$ 13'31	
direct	3051 May 04 20:37	27° $\Omega$ 12'00					
	3051 Jul 28 05:22	0° $\mathbb{M}$		conjunction	3059 Oct 02 21:18	9° $\underline{\Omega}$ 46'09	0°41'59
conjunction	3051 Aug 24 11:27	1° $\mathbb{M}$ 38'58	0°42'30	minimum elong	3059 Oct 02 21:18	9° $\underline{\Omega}$ 46'09	0°41'58
minimum elong	3051 Aug 24 11:27	1° $\mathbb{M}$ 38'58	0°42'29	max. Earth dist.	3059 Oct 01 21:50	9° $\underline{\Omega}$ 42'27	19.27490 AU
max. Earth dist.	3051 Aug 23 12:02	1° $\mathbb{M}$ 35'21	19.46087 AU	retrograde	3060 Jan 18 22:53	14° $\underline{\Omega}$ 10'43	
retrograde	3051 Dec 11 20:16	6° $\mathbb{M}$ 02'14		opposition	3060 Apr 01 08:44	12° $\underline{\Omega}$ 08'12	0°46'05
opposition	3052 Feb 23 11:23	3° $\mathbb{M}$ 59'13	0°47'56	min. Earth dist.	3060 Apr 02 04:06	12° $\underline{\Omega}$ 06'06	17.27524 AU
min. Earth dist.	3052 Feb 24 07:27	3° $\mathbb{M}$ 57'01	17.43867 AU	direct	3060 Jun 16 14:25	10° $\underline{\Omega}$ 01'49	
direct	3052 May 08 20:47	1° $\mathbb{M}$ 53'33		max. Earth dist.	3060 Oct 06 03:23	14° $\underline{\Omega}$ 31'03	19.27597 AU
conjunction	3052 Aug 28 15:04	6° $\mathbb{M}$ 21'37	0°43'29	conjunction	3060 Oct 07 01:30	14° $\underline{\Omega}$ 34'33	0°40'34
minimum elong	3052 Aug 28 15:03	6° $\mathbb{M}$ 21'37	0°43'28	minimum elong	3060 Oct 07 01:30	14° $\underline{\Omega}$ 34'33	0°40'34
max. Earth dist.	3052 Aug 27 14:14	6° $\mathbb{M}$ 17'45	19.41719 AU	retrograde	3061 Jan 22 23:13	18° $\underline{\Omega}$ 58'53	
retrograde	3052 Dec 15 18:29	10° $\mathbb{M}$ 45'18		opposition	3061 Apr 06 10:35	16° $\underline{\Omega}$ 56'29	0°44'21
opposition	3053 Feb 27 09:08	8° $\mathbb{M}$ 42'13	0°48'53	min. Earth dist.	3061 Apr 07 06:20	16° $\underline{\Omega}$ 54'20	17.27877 AU
min. Earth dist.	3053 Feb 28 06:01	8° $\mathbb{M}$ 39'55	17.39786 AU	direct	3061 Jun 21 17:13	14° $\underline{\Omega}$ 50'08	
direct	3053 May 13 19:58	6° $\mathbb{M}$ 36'16		max. Earth dist.	3061 Oct 11 06:40	19° $\underline{\Omega}$ 19'15	19.28206 AU
conjunction	3053 Sep 02 18:53	11° $\mathbb{M}$ 05'20	0°44'10	conjunction	3061 Oct 12 04:59	19° $\underline{\Omega}$ 22'46	0°38'51
minimum elong	3053 Sep 02 18:53	11° $\mathbb{M}$ 05'20	0°44'10	minimum elong	3061 Oct 12 04:59	19° $\underline{\Omega}$ 22'46	0°38'51
max. Earth dist.	3053 Sep 01 18:52	11° $\mathbb{M}$ 01'36	19.37920 AU	retrograde	3062 Jan 28 00:36	23° $\underline{\Omega}$ 46'49	
retrograde	3053 Dec 20 18:53	15° $\mathbb{M}$ 29'22		opposition	3062 Apr 11 12:22	21° $\underline{\Omega}$ 44'30	0°42'18
opposition	3054 Mar 04 07:26	13° $\mathbb{M}$ 26'16	0°49'30	min. Earth dist.	3062 Apr 12 06:39	21° $\underline{\Omega}$ 42'30	17.28730 AU
min. Earth dist.	3054 Mar 05 03:41	13° $\mathbb{M}$ 24'03	17.36281 AU	direct	3062 Jun 26 21:57	19° $\underline{\Omega}$ 38'12	
direct	3054 May 18 22:06	11° $\mathbb{M}$ 20'09		max. Earth dist.	3062 Oct 16 11:57	24° $\underline{\Omega}$ 07'24	19.29308 AU
conjunction	3054 Sep 07 23:01	15° $\mathbb{M}$ 50'06	0°44'34	conjunction	3062 Oct 17 08:19	24° $\underline{\Omega}$ 10'37	0°36'53
minimum elong	3054 Sep 07 23:01	15° $\mathbb{M}$ 50'06	0°44'33	minimum elong	3062 Oct 17 08:19	24° $\underline{\Omega}$ 10'37	0°36'53
max. Earth dist.	3054 Sep 06 22:19	15° $\mathbb{M}$ 46'14	19.34719 AU	retrograde	3063 Feb 02 00:30	28° $\underline{\Omega}$ 34'14	
retrograde	3054 Dec 25 17:35	20° $\mathbb{M}$ 14'24		opposition	3063 Apr 16 14:17	26° $\underline{\Omega}$ 32'01	0°39'57
opposition	3055 Mar 09 06:16	18° $\mathbb{M}$ 11'21	0°49'47	min. Earth dist.	3063 Apr 17 08:30	26° $\underline{\Omega}$ 30'03	17.30078 AU
min. Earth dist.	3055 Mar 10 03:21	18° $\mathbb{M}$ 09'02	17.33399 AU	direct	3063 Jul 02 01:31	24° $\underline{\Omega}$ 25'48	
direct	3055 May 23 22:24	16° $\mathbb{M}$ 05'04		conjunction	3063 Oct 22 10:55	28° $\underline{\Omega}$ 57'50	0°34'39
max. Earth dist.	3055 Sep 12 03:19	20° $\mathbb{M}$ 32'04	19.32148 AU	minimum elong	3063 Oct 22 10:55	28° $\underline{\Omega}$ 57'50	0°34'40
conjunction	3055 Sep 13 03:27	20° $\mathbb{M}$ 35'50	0°44'39	max. Earth dist.	3063 Oct 21 14:33	28° $\underline{\Omega}$ 54'37	19.30927 AU
minimum elong	3055 Sep 13 03:27	20° $\mathbb{M}$ 35'50	0°44'40		3063 Nov 07 23:28	0° $\mathbb{M}$	
retrograde	3055 Dec 30 19:08	25° $\mathbb{M}$ 00'21		retrograde	3064 Feb 07 00:27	3° $\mathbb{M}$ 20'59	
opposition	3056 Mar 13 05:43	22° $\mathbb{M}$ 57'23	0°49'44	opposition	3064 Apr 20 16:15	1° $\mathbb{M}$ 18'49	0°37'19
min. Earth dist.	3056 Mar 14 01:51	22° $\mathbb{M}$ 55'11	17.31121 AU	min. Earth dist.	3064 Apr 21 08:55	1° $\mathbb{M}$ 17'01	17.31961 AU
direct	3056 May 28 01:54	20° $\mathbb{M}$ 51'02			3064 May 23 12:15	30° $\mathbb{R}$ $\underline{\Omega}$	
max. Earth dist.	3056 Sep 16 07:48	25° $\mathbb{M}$ 18'42	19.30160 AU	direct	3064 Jul 06 06:19	29° $\underline{\Omega}$ 12'42	
conjunction	3056 Sep 17 07:56	25° $\mathbb{M}$ 22'29	0°44'27		3064 Aug 18 00:40	0° $\mathbb{M}$	
minimum elong	3056 Sep 17 07:55	25° $\mathbb{M}$ 22'29	0°44'27	conjunction	3064 Oct 26 12:52	3° $\mathbb{M}$ 44'11	0°32'11
retrograde	3057 Jan 03 18:40	29° $\mathbb{M}$ 47'09		minimum elong	3064 Oct 26 12:52	3° $\mathbb{M}$ 44'11	0°32'11
opposition	3057 Mar 18 05:51	27° $\mathbb{M}$ 44'17	0°49'20	max. Earth dist.	3064 Oct 25 19:03	3° $\mathbb{M}$ 41'23	19.33082 AU
				retrograde	3065 Feb 10 23:30	8° $\mathbb{M}$ 06'46	

opposition	3065 Apr 25 18:16	6°M04'42	0°34'27	min. Earth dist.	3072 May 29 06:33	8°Z50'54	17.66643 AU
min. Earth dist.	3065 Apr 26 10:02	6°M03'00	17.34386 AU	direct	3072 Aug 14 03:53	6°Z47'29	
direct	3065 Jul 11 10:53	3°M58'43					
				conjunction	3072 Dec 02 23:59	11°Z10'39	0°06'49
conjunction	3065 Oct 31 13:59	8°M29'30	0°29'31	minimum elong	3072 Dec 02 23:59	11°Z10'39	0°06'49
minimum elong	3065 Oct 31 13:59	8°M29'30	0°29'31	behind sun begin	3072 Dec 02 17:50	11°Z09'43	
max. Earth dist.	3065 Oct 30 20:43	8°M26'47	19.35803 AU	behind sun end	3072 Dec 03 06:08	11°Z11'35	
retrograde	3066 Feb 15 21:58	12°M51'29		max. Earth dist.	3072 Dec 02 20:04	11°Z10'05	19.69715 AU
opposition	3066 Apr 30 19:58	10°M49'30	0°31'21	retrograde	3073 Mar 20 03:54	15°Z27'05	
min. Earth dist.	3066 May 01 10:08	10°M47'58	17.37405 AU	opposition	3073 Jun 03 01:39	13°Z26'28	0°05'35
direct	3066 Jul 16 15:14	8°M43'39		min. Earth dist.	3073 Jun 03 03:46	13°Z26'15	17.72797 AU
				direct	3073 Aug 19 05:45	11°Z22'56	
conjunction	3066 Nov 05 14:31	13°M13'40	0°26'39				
minimum elong	3066 Nov 05 14:31	13°M13'40	0°26'39	conjunction	3073 Dec 07 18:41	15°Z44'42	0°03'17
max. Earth dist.	3066 Nov 04 23:58	13°M11'23	19.39119 AU	minimum elong	3073 Dec 07 18:41	15°Z44'42	0°03'17
	3066 Dec 04 11:04	15°M		behind sun begin	3073 Dec 07 12:08	15°Z43'42	
retrograde	3067 Feb 20 20:08	17°M34'57		behind sun end	3073 Dec 08 01:15	15°Z45'41	
opposition	3067 May 05 21:38	15°M33'06	0°28'03	max. Earth dist.	3073 Dec 07 16:35	15°Z44'25	19.75959 AU
min. Earth dist.	3067 May 06 10:10	15°M31'46	17.41003 AU	retrograde	3074 Mar 24 21:32	20°Z00'12	
	3067 May 18 21:52	15°RM		opposition	3074 Jun 08 00:48	17°Z59'46	0°01'38
direct	3067 Jul 21 19:47	13°M27'30		min. Earth dist.	3074 Jun 08 02:27	17°Z59'35	17.79127 AU
	3067 Sep 20 15:06	15°M		direct	3074 Aug 24 03:57	15°Z56'36	
				desc. node	3074 Nov 07 21:16	18°Z13'22	
conjunction	3067 Nov 10 14:06	17°M56'35	0°23'37				
minimum elong	3067 Nov 10 14:06	17°M56'35	0°23'37	conjunction	3074 Dec 12 12:27	20°Z16'53	0°00'-20
max. Earth dist.	3067 Nov 10 00:32	17°M54'27	19.43019 AU	minimum elong	3074 Dec 12 12:27	20°Z16'53	0°00'21
retrograde	3068 Feb 25 17:41	22°M17'09		behind sun begin	3074 Dec 12 05:54	20°Z15'54	
opposition	3068 May 09 23:06	20°M15'29	0°24'35	behind sun end	3074 Dec 12 19:00	20°Z17'52	
min. Earth dist.	3068 May 10 10:05	20°M14'18	17.45196 AU	max. Earth dist.	3074 Dec 12 11:31	20°Z16'48	19.82356 AU
direct	3068 Jul 25 22:27	18°M10'08		retrograde	3075 Mar 29 17:31	24°Z31'27	
				opposition	3075 Jun 12 23:23	22°Z31'09	0°-2'-17
conjunction	3068 Nov 14 13:00	22°M38'14	0°20'27	min. Earth dist.	3075 Jun 12 22:30	22°Z31'15	17.85564 AU
minimum elong	3068 Nov 14 13:00	22°M38'14	0°20'27	direct	3075 Aug 29 04:50	20°Z28'21	
max. Earth dist.	3068 Nov 14 02:07	22°M36'31	19.47499 AU				
retrograde	3069 Mar 01 15:51	26°M58'02		conjunction	3075 Dec 17 05:16	24°Z47'07	0°-3'-54
opposition	3069 May 15 00:16	24°M56'34	0°20'58	minimum elong	3075 Dec 17 05:15	24°Z47'07	0°03'54
min. Earth dist.	3069 May 15 09:06	24°M55'38	17.49924 AU	behind sun begin	3075 Dec 16 22:45	24°Z46'09	
direct	3069 Jul 31 01:41	22°M51'34		behind sun end	3075 Dec 17 11:45	24°Z48'06	
				max. Earth dist.	3075 Dec 17 06:26	24°Z47'16	19.88829 AU
conjunction	3069 Nov 19 10:55	27°M18'32	0°17'09	retrograde	3076 Apr 02 09:42	29°Z00'44	
minimum elong	3069 Nov 19 10:55	27°M18'32	0°17'09	opposition	3076 Jun 16 21:33	27°Z00'34	0°-6'-11
max. Earth dist.	3069 Nov 19 01:25	27°M17'04	19.52481 AU	min. Earth dist.	3076 Jun 16 20:09	27°Z00'43	17.92074 AU
	3070 Jan 04 13:00	0°Z		direct	3076 Sep 02 01:55	24°Z58'06	
retrograde	3070 Mar 06 12:40	1°Z37'35					
	3070 May 10 16:29	30°RM		conjunction	3076 Dec 20 21:02	29°Z15'19	0°-7'-22
opposition	3070 May 20 01:11	29°M36'19	0°17'14	minimum elong	3076 Dec 20 21:02	29°Z15'19	0°07'23
min. Earth dist.	3070 May 20 08:54	29°M35'30	17.55135 AU	behind sun begin	3076 Dec 20 15:01	29°Z14'25	
direct	3070 Aug 05 02:14	27°M31'39		behind sun end	3076 Dec 21 03:04	29°Z16'13	
	3070 Oct 22 23:06	0°Z		max. Earth dist.	3076 Dec 20 23:13	29°Z15'38	19.95373 AU
					3077 Jan 02 00:56	0°Z	
conjunction	3070 Nov 24 08:10	1°Z57'28	0°13'46	retrograde	3077 Apr 07 03:49	3°Z27'58	
minimum elong	3070 Nov 24 08:10	1°Z57'28	0°13'46	opposition	3077 Jun 21 18:42	1°Z27'54	0°-10'00
behind sun begin	3070 Nov 24 04:36	1°Z56'55		min. Earth dist.	3077 Jun 21 14:44	1°Z28'19	17.98640 AU
behind sun end	3070 Nov 24 11:44	1°Z58'00			3077 Jul 31 08:18	30°RM	
max. Earth dist.	3070 Nov 24 00:52	1°Z56'20	19.57902 AU	direct	3077 Sep 07 01:06	29°Z25'46	
retrograde	3071 Mar 11 10:48	6°Z15'39			3077 Oct 13 15:54	0°Z	
opposition	3071 May 25 01:36	4°Z14'38	0°13'24				
min. Earth dist.	3071 May 25 07:01	4°Z14'03	17.60726 AU	conjunction	3077 Dec 25 11:54	3°Z41'24	0°-10'-45
direct	3071 Aug 10 04:44	2°Z10'20		minimum elong	3077 Dec 25 11:54	3°Z41'24	0°10'46
				behind sun begin	3077 Dec 25 06:49	3°Z40'39	
conjunction	3071 Nov 29 04:35	6°Z34'52	0°10'19	behind sun end	3077 Dec 25 16:59	3°Z42'10	
minimum elong	3071 Nov 29 04:35	6°Z34'52	0°10'18	max. Earth dist.	3077 Dec 25 16:30	3°Z42'05	20.01958 AU
behind sun begin	3071 Nov 28 23:19	6°Z34'04		retrograde	3078 Apr 11 18:35	7°Z53'05	
behind sun end	3071 Nov 29 09:50	6°Z35'40		opposition	3078 Jun 26 15:22	5°Z53'07	0°-13'-44
max. Earth dist.	3071 Nov 28 22:54	6°Z34'00	19.63663 AU	min. Earth dist.	3078 Jun 26 10:48	5°Z53'35	18.05252 AU
retrograde	3072 Mar 15 06:18	10°Z52'12		direct	3078 Sep 11 20:50	3°Z51'18	
opposition	3072 May 29 01:56	8°Z51'23	0°09'31				

conjunction	3078 Dec 30 01:40	8°☾05'21	0°-14'-3	direct	3086 Oct 17 06:28	8°≈08'19	
minimum elong	3078 Dec 30 01:39	8°☾05'21	0°14'05				
behind sun begin	3078 Dec 29 22:16	8°☾04'51		conjunction	3087 Feb 01 12:02	12°≈10'57	0°-35'-31
behind sun end	3078 Dec 30 05:02	8°☾05'51		minimum elong	3087 Feb 01 12:02	12°≈10'57	0°35'33
max. Earth dist.	3078 Dec 30 07:14	8°☾06'11	20.08603 AU	max. Earth dist.	3087 Feb 02 05:35	12°≈13'32	20.61994 AU
retrograde	3079 Apr 16 10:57	12°☾16'06			3087 Mar 25 23:15	15°≈	
opposition	3079 Jul 01 11:05	10°☾16'13	0°-17'-21	retrograde	3087 May 20 17:46	16°≈15'32	
min. Earth dist.	3079 Jul 01 03:49	10°☾16'58	18.11933 AU		3087 Jul 18 15:12	15°☾≈	
direct	3079 Sep 16 17:44	8°☾14'43		min. Earth dist.	3087 Aug 05 06:00	14°≈18'33	18.64994 AU
				opposition	3087 Aug 06 00:15	14°≈16'43	0°-40'-24
conjunction	3080 Jan 03 14:39	12°☾27'13	0°-17'-15	direct	3087 Oct 21 19:08	12°≈18'16	
minimum elong	3080 Jan 03 14:39	12°☾27'13	0°17'17		3088 Jan 13 22:09	15°≈	
max. Earth dist.	3080 Jan 03 23:00	12°☾28'29	20.15317 AU				
retrograde	3080 Apr 20 00:37	16°☾37'03		conjunction	3088 Feb 05 19:45	16°≈19'41	0°-37'-25
opposition	3080 Jul 05 06:20	14°☾37'16	0°-20'-50	minimum elong	3088 Feb 05 19:45	16°≈19'41	0°37'25
min. Earth dist.	3080 Jul 04 22:06	14°☾38'07	18.18694 AU	max. Earth dist.	3088 Feb 06 15:13	16°≈22'33	20.67874 AU
direct	3080 Sep 20 11:54	12°☾36'08		retrograde	3088 May 24 04:21	20°≈23'38	
				opposition	3088 Aug 09 13:57	18°≈24'55	0°-42'-23
conjunction	3081 Jan 07 02:34	16°☾47'05	0°-20'-19	min. Earth dist.	3088 Aug 08 19:11	18°≈26'48	18.70690 AU
minimum elong	3081 Jan 07 02:34	16°☾47'05	0°20'20	direct	3088 Oct 25 06:51	16°≈26'46	
max. Earth dist.	3081 Jan 07 11:50	16°☾48'29	20.22120 AU				
retrograde	3081 Apr 24 15:24	20°☾56'04		conjunction	3089 Feb 09 02:46	20°≈26'58	0°-39'-7
opposition	3081 Jul 10 00:37	18°☾56'24	0°-24'-10	minimum elong	3089 Feb 09 02:46	20°≈26'58	0°39'08
min. Earth dist.	3081 Jul 09 13:46	18°☾57'31	18.25531 AU	max. Earth dist.	3089 Feb 09 21:48	20°≈29'46	20.73372 AU
direct	3081 Sep 25 05:59	16°☾55'38		retrograde	3089 May 28 15:09	24°≈30'22	
				min. Earth dist.	3089 Aug 13 07:31	22°≈33'36	18.75990 AU
conjunction	3082 Jan 11 13:57	21°☾05'07	0°-23'-16	opposition	3089 Aug 14 02:59	22°≈31'39	0°-44'-8
minimum elong	3082 Jan 11 13:57	21°☾05'07	0°23'17	direct	3089 Oct 29 17:51	20°≈33'45	
max. Earth dist.	3082 Jan 12 01:54	21°☾06'55	20.28970 AU				
retrograde	3082 Apr 29 04:12	25°☾13'15		conjunction	3090 Feb 13 09:30	24°≈32'50	0°-40'-36
opposition	3082 Jul 14 18:10	23°☾13'44	0°-27'-21	minimum elong	3090 Feb 13 09:30	24°≈32'50	0°40'36
min. Earth dist.	3082 Jul 14 06:25	23°☾14'56	18.32391 AU	max. Earth dist.	3090 Feb 14 06:11	24°≈35'52	20.78450 AU
direct	3082 Sep 29 22:09	21°☾13'23		retrograde	3090 Jun 02 00:47	28°≈35'39	
				opposition	3090 Aug 18 15:13	26°≈36'57	0°-45'-38
conjunction	3083 Jan 16 00:25	25°☾21'24	0°-26'-3	min. Earth dist.	3090 Aug 17 19:17	26°≈38'57	18.80855 AU
minimum elong	3083 Jan 16 00:25	25°☾21'24	0°26'03	direct	3090 Nov 03 05:10	24°≈39'16	
max. Earth dist.	3083 Jan 16 12:58	25°☾23'17	20.35830 AU				
retrograde	3083 May 03 17:46	29°☾28'46		conjunction	3091 Feb 17 15:34	28°≈37'15	0°-41'-52
opposition	3083 Jul 19 11:06	27°☾29'24	0°-30'-21	minimum elong	3091 Feb 17 15:34	28°≈37'15	0°41'53
min. Earth dist.	3083 Jul 18 21:06	27°☾30'49	18.39235 AU	max. Earth dist.	3091 Feb 18 11:47	28°≈40'12	20.83119 AU
direct	3083 Oct 04 13:47	25°☾29'27			3091 Mar 13 17:12	0°☾	
				retrograde	3091 Jun 06 10:16	2°☾39'33	
conjunction	3084 Jan 20 10:13	29°☾36'04	0°-28'-41	min. Earth dist.	3091 Aug 22 06:30	0°☾42'51	18.85340 AU
minimum elong	3084 Jan 20 10:13	29°☾36'04	0°28'42	opposition	3091 Aug 23 02:57	0°☾40'48	0°-46'-55
max. Earth dist.	3084 Jan 21 01:23	29°☾38'19	20.42629 AU		3091 Sep 09 11:29	30°☾≈	
	3084 Jan 27 02:11	0°≈		direct	3091 Nov 07 14:21	28°≈43'17	
retrograde	3084 May 07 05:44	3°≈42'40			3092 Jan 02 15:39	0°☾	
opposition	3084 Jul 23 03:28	1°≈43'29	0°-33'-9				
min. Earth dist.	3084 Jul 22 12:39	1°≈44'59	18.45981 AU	conjunction	3092 Feb 21 21:13	2°☾40'16	0°-42'-55
	3084 Sep 12 13:56	30°☾☾		minimum elong	3092 Feb 21 21:13	2°☾40'16	0°42'56
direct	3084 Oct 08 04:05	29°☾43'56		max. Earth dist.	3092 Feb 22 19:16	2°☾43'29	20.87412 AU
	3084 Nov 02 05:48	0°≈		retrograde	3092 Jun 09 18:55	6°☾42'05	
				opposition	3092 Aug 26 13:57	4°☾43'18	0°-47'-56
conjunction	3085 Jan 23 19:22	3°≈49'10	0°-31'-8	min. Earth dist.	3092 Aug 25 16:49	4°☾45'25	18.89456 AU
minimum elong	3085 Jan 23 19:22	3°≈49'10	0°31'09	direct	3092 Nov 11 00:42	2°☾45'57	
max. Earth dist.	3085 Jan 24 10:48	3°≈51'28	20.49306 AU				
retrograde	3085 May 11 18:39	7°≈55'04		conjunction	3093 Feb 25 02:28	6°☾41'59	0°-43'-44
opposition	3085 Jul 27 18:56	5°≈56'01	0°-35'-47	minimum elong	3093 Feb 25 02:28	6°☾41'59	0°43'45
min. Earth dist.	3085 Jul 27 02:27	5°≈57'41	18.52579 AU	max. Earth dist.	3093 Feb 26 00:04	6°☾45'07	20.91361 AU
direct	3085 Oct 12 17:55	3°≈56'51		retrograde	3093 Jun 14 03:34	10°☾43'25	
				min. Earth dist.	3093 Aug 30 02:46	8°☾46'43	18.93257 AU
conjunction	3086 Jan 28 04:05	8°≈00'47	0°-33'-25	opposition	3093 Aug 31 00:12	8°☾44'34	0°-48'-43
minimum elong	3086 Jan 28 04:05	8°≈00'47	0°33'26	direct	3093 Nov 15 08:04	6°☾47'22	
max. Earth dist.	3086 Jan 28 21:44	8°≈03'24	20.55784 AU				
retrograde	3086 May 16 05:44	12°≈06'00		conjunction	3094 Mar 01 07:33	10°☾42'35	0°-44'-21
opposition	3086 Aug 01 09:54	10°≈07'06	0°-38'-12	minimum elong	3094 Mar 01 07:33	10°☾42'35	0°44'22
min. Earth dist.	3086 Jul 31 16:49	10°≈08'49	18.58932 AU	max. Earth dist.	3094 Mar 02 06:48	10°☾45'57	20.94995 AU

retrograde	3094 Jun 18 11:25	14° <del>✕</del> 43'39	
min. Earth dist.	3094 Sep 03 11:46	12° <del>✕</del> 47'01	18.96733 AU
opposition	3094 Sep 04 09:59	12° <del>✕</del> 44'48	0°-49'-15
direct	3094 Nov 19 17:02	10° <del>✕</del> 47'46	
conjunction	3095 Mar 05 12:06	14° <del>✕</del> 42'15	0°-44'-44
minimum elong	3095 Mar 05 12:06	14° <del>✕</del> 42'15	0°44'44
max. Earth dist.	3095 Mar 06 10:49	14° <del>✕</del> 45'31	20.98317 AU
retrograde	3095 Jun 22 20:05	18° <del>✕</del> 43'04	
opposition	3095 Sep 08 19:26	16° <del>✕</del> 44'11	0°-49'-33
min. Earth dist.	3095 Sep 07 21:03	16° <del>✕</del> 46'25	18.99904 AU
direct	3095 Nov 23 23:08	14° <del>✕</del> 47'20	
conjunction	3096 Mar 08 16:48	18° <del>✕</del> 41'10	0°-44'-54
minimum elong	3096 Mar 08 16:48	18° <del>✕</del> 41'10	0°44'56
max. Earth dist.	3096 Mar 09 17:01	18° <del>✕</del> 44'39	21.01318 AU
retrograde	3096 Jun 26 03:36	22° <del>✕</del> 41'48	
min. Earth dist.	3096 Sep 11 05:14	20° <del>✕</del> 45'14	19.02730 AU
opposition	3096 Sep 12 04:14	20° <del>✕</del> 42'56	0°-49'-37
direct	3096 Nov 27 06:42	18° <del>✕</del> 46'15	
conjunction	3097 Mar 12 21:14	22° <del>✕</del> 39'33	0°-44'-52
minimum elong	3097 Mar 12 21:14	22° <del>✕</del> 39'33	0°44'52
max. Earth dist.	3097 Mar 13 20:34	22° <del>✕</del> 42'54	21.03968 AU
retrograde	3097 Jun 30 12:20	26° <del>✕</del> 40'04	
opposition	3097 Sep 16 12:49	24° <del>✕</del> 41'13	0°-49'-27
min. Earth dist.	3097 Sep 15 14:08	24° <del>✕</del> 43'28	19.05195 AU
direct	3097 Dec 01 11:56	22° <del>✕</del> 44'42	
conjunction	3098 Mar 17 01:48	26° <del>✕</del> 37'34	0°-44'-36
minimum elong	3098 Mar 17 01:48	26° <del>✕</del> 37'34	0°44'38
max. Earth dist.	3098 Mar 18 02:19	26° <del>✕</del> 41'05	21.06225 AU
	3098 May 25 21:33	0° <del>✕</del>	
retrograde	3098 Jul 04 19:48	0° <del>✕</del> 38'01	
	3098 Aug 14 17:36	30° <del>✕</del>	
opposition	3098 Sep 20 20:56	28° <del>✕</del> 39'11	0°-49'-2
min. Earth dist.	3098 Sep 19 21:53	28° <del>✕</del> 41'29	19.07235 AU
direct	3098 Dec 05 18:29	26° <del>✕</del> 42'51	
	3099 Mar 10 23:00	0° <del>✕</del>	
conjunction	3099 Mar 21 06:18	0° <del>✕</del> 35'21	0°-44'-8
minimum elong	3099 Mar 21 06:18	0° <del>✕</del> 35'21	0°44'09
max. Earth dist.	3099 Mar 22 05:40	0° <del>✕</del> 38'41	21.08052 AU
retrograde	3099 Jul 09 04:11	4° <del>✕</del> 35'49	
min. Earth dist.	3099 Sep 24 06:42	2° <del>✕</del> 39'14	19.08836 AU
opposition	3099 Sep 25 04:58	2° <del>✕</del> 37'00	0°-48'-24
direct	3099 Dec 09 23:29	0° <del>✕</del> 40'47	
conjunction	3100 Mar 25 11:05	4° <del>✕</del> 33'03	0°-43'-28
minimum elong	3100 Mar 25 11:05	4° <del>✕</del> 33'03	0°43'29
max. Earth dist.	3100 Mar 26 11:15	4° <del>✕</del> 36'30	21.09402 AU
retrograde	3100 Jul 13 12:23	8° <del>✕</del> 33'35	
opposition	3100 Sep 29 12:38	6° <del>✕</del> 34'46	0°-47'-32
min. Earth dist.	3100 Sep 28 14:22	6° <del>✕</del> 36'59	19.09917 AU
direct	3100 Dec 14 05:31	4° <del>✕</del> 38'39	

conjunction	3100 Mar 25 11:05	4°♈33'03	0°-43'-28	direct	3108 Jan 11 17:06	2°♏24'21	
minimum elong	3100 Mar 25 11:05	4°♈33'03	0°43'29				
max. Earth dist.	3100 Mar 26 11:15	4°♈36'30	21.09402 AU	conjunction	3108 Apr 26 09:05	6°♏17'25	0°-31'-1
retrograde	3100 Jul 13 12:23	8°♈33'35		minimum elong	3108 Apr 26 09:05	6°♏17'25	0°31'03
opposition	3100 Sep 29 12:38	6°♈34'46	0°-47'-32	max. Earth dist.	3108 Apr 27 02:58	6°♏19'57	21.00951 AU
min. Earth dist.	3100 Sep 28 14:22	6°♈36'59	19.09917 AU	retrograde	3108 Aug 15 03:21	10°♏20'00	
direct	3100 Dec 14 05:31	4°♈38'39		opposition	3108 Oct 31 19:55	8°♏20'13	0°-32'-59
				min. Earth dist.	3108 Oct 31 04:03	8°♏21'50	18.99514 AU
conjunction	3101 Mar 29 16:00	8°♈30'44	0°-42'-35	direct	3109 Jan 14 22:59	6°♏23'25	
minimum elong	3101 Mar 29 16:00	8°♈30'44	0°42'36				
max. Earth dist.	3101 Mar 30 14:28	8°♈33'56	21.10211 AU	conjunction	3109 Apr 30 16:20	10°♏16'59	0°-28'-41
retrograde	3101 Jul 17 19:50	12°♈31'23		minimum elong	3109 Apr 30 16:20	10°♏16'59	0°28'42
opposition	3101 Oct 03 20:03	10°♈32'32	0°-46'-27	max. Earth dist.	3109 May 01 08:10	10°♏19'14	20.97958 AU
min. Earth dist.	3101 Oct 02 23:07	10°♈34'37	19.10448 AU	retrograde	3109 Aug 19 11:53	14°♏20'05	
direct	3101 Dec 18 10:18	8°♈36'28		opposition	3109 Nov 05 02:37	12°♏20'11	0°-30'-19
				min. Earth dist.	3109 Nov 04 12:30	12°♏21'37	18.96357 AU
conjunction	3102 Apr 02 21:16	12°♈28'27	0°-41'-30	direct	3110 Jan 19 02:49	10°♏23'13	
minimum elong	3102 Apr 02 21:16	12°♈28'27	0°41'30				
max. Earth dist.	3102 Apr 03 20:04	12°♈31'43	21.10447 AU	conjunction	3110 May 05 00:18	14°♏17'24	0°-26'-13
retrograde	3102 Jul 22 04:27	16°♈29'15		minimum elong	3110 May 05 00:18	14°♏17'24	0°26'14
min. Earth dist.	3102 Oct 07 06:34	14°♈32'24	19.10380 AU	max. Earth dist.	3110 May 05 16:11	14°♏19'40	20.94642 AU
opposition	3102 Oct 08 03:20	14°♈30'19	0°-45'-8		3110 May 17 11:24	15°♏	
direct	3102 Dec 22 16:27	12°♈34'16		retrograde	3110 Aug 23 21:54	18°♏21'03	
				opposition	3110 Nov 09 09:28	16°♏21'03	0°-27'-30
conjunction	3103 Apr 07 02:25	16°♈26'13	0°-40'-13	min. Earth dist.	3110 Nov 08 19:31	16°♏22'28	18.92868 AU
minimum elong	3103 Apr 07 02:25	16°♈26'13	0°40'14		3110 Dec 15 21:58	15°♏	
max. Earth dist.	3103 Apr 07 23:20	16°♈29'12	21.10094 AU	direct	3111 Jan 23 09:08	14°♏23'56	
retrograde	3103 Jul 26 11:16	20°♈27'12			3111 Mar 01 22:25	15°♏	
opposition	3103 Oct 12 10:34	18°♈28'10	0°-43'-36				
min. Earth dist.	3103 Oct 11 15:18	18°♈30'06	19.09741 AU	conjunction	3111 May 09 08:39	18°♏18'48	0°-23'-36
direct	3103 Dec 26 20:53	16°♈32'02		minimum elong	3111 May 09 08:39	18°♏18'48	0°23'36
				max. Earth dist.	3111 May 09 22:23	18°♏20'46	20.90996 AU
conjunction	3104 Apr 10 08:05	20°♈24'02	0°-38'-44	retrograde	3111 Aug 28 07:27	22°♏23'06	
minimum elong	3104 Apr 10 08:05	20°♈24'02	0°38'44	opposition	3111 Nov 13 16:42	20°♏22'59	0°-24'-33
max. Earth dist.	3104 Apr 11 05:15	20°♈27'03	21.09181 AU	min. Earth dist.	3111 Nov 13 04:48	20°♏24'12	18.89052 AU
retrograde	3104 Jul 29 19:35	24°♈25'13		direct	3112 Jan 27 13:20	18°♏25'43	
opposition	3104 Oct 15 17:18	22°♈26'03	0°-41'-52				
min. Earth dist.	3104 Oct 14 22:15	22°♈27'58	19.08555 AU	conjunction	3112 May 12 18:03	22°♏21'24	0°-20'-51
direct	3104 Dec 30 03:08	20°♈29'50		minimum elong	3112 May 12 18:03	22°♏21'24	0°20'53
				max. Earth dist.	3112 May 13 07:29	22°♏23'19	20.87010 AU
conjunction	3105 Apr 14 13:48	24°♈21'57	0°-37'-4	retrograde	3112 Aug 31 18:48	26°♏26'20	
minimum elong	3105 Apr 14 13:48	24°♈21'57	0°37'06	opposition	3112 Nov 16 23:54	24°♏26'10	0°-21'-27
max. Earth dist.	3105 Apr 15 09:02	24°♈24'41	21.07754 AU	min. Earth dist.	3112 Nov 16 12:32	24°♏27'20	18.84874 AU
retrograde	3105 Aug 03 02:34	28°♈23'24		direct	3113 Jan 30 20:25	22°♏28'43	
min. Earth dist.	3105 Oct 19 06:37	26°♈25'50	19.06897 AU				
opposition	3105 Oct 20 00:07	26°♈24'04	0°-39'-55	conjunction	3113 May 17 04:02	26°♏25'17	0°-18'00
direct	3106 Jan 03 07:10	24°♈27'43		minimum elong	3113 May 17 04:02	26°♏25'17	0°18'01
				max. Earth dist.	3113 May 17 14:53	26°♏26'50	20.82646 AU
conjunction	3106 Apr 18 19:49	28°♈20'03	0°-35'-13		3113 Jul 31 13:57	0°♏	
minimum elong	3106 Apr 18 19:49	28°♈20'03	0°35'14	retrograde	3113 Sep 05 05:18	0°♏30'57	
max. Earth dist.	3106 Apr 19 15:23	28°♈22'50	21.05874 AU		3113 Oct 11 09:47	30°♏	
	3106 May 18 21:36	0°♏		opposition	3113 Nov 21 07:43	28°♏30'41	0°-18'-13
retrograde	3106 Aug 07 10:44	2°♏21'49		min. Earth dist.	3113 Nov 20 22:48	28°♏31'37	18.80314 AU
opposition	3106 Oct 24 06:42	0°♏22'20	0°-37'-47	direct	3114 Feb 04 01:43	26°♏33'02	
min. Earth dist.	3106 Oct 23 13:12	0°♏24'06	19.04803 AU		3114 May 12 18:01	0°♏	
	3106 Nov 02 13:06	30°♏					
direct	3107 Jan 07 13:11	28°♈25'51		conjunction	3114 May 21 14:49	0°♏30'35	0°-15'-2
	3107 Mar 10 22:35	0°♏		minimum elong	3114 May 21 14:49	0°♏30'35	0°15'03
				behind sun begin	3114 May 21 12:36	0°♏30'16	
conjunction	3107 Apr 23 02:09	2°♏18'29	0°-33'-12	behind sun end	3114 May 21 17:02	0°♏30'54	
minimum elong	3107 Apr 23 02:09	2°♏18'29	0°33'13	max. Earth dist.	3114 May 22 00:58	0°♏32'02	20.77883 AU
max. Earth dist.	3107 Apr 23 19:50	2°♏21'00	21.03592 AU	retrograde	3114 Sep 09 17:48	4°♏37'00	
retrograde	3107 Aug 11 18:31	6°♏20'39		opposition	3114 Nov 25 15:48	2°♏36'38	0°-14'-53
opposition	3107 Oct 28 13:22	4°♏21'00	0°-35'-28	min. Earth dist.	3114 Nov 25 07:33	2°♏37'29	18.75331 AU
min. Earth dist.	3107 Oct 27 21:26	4°♏22'37	19.02340 AU	direct	3115 Feb 08 09:40	0°♏38'44	

conjunction	3115 May 26 02:26	4°II37'19	0°-11'-58	retrograde	3121 Oct 09 16:40	4°☿00'53	
minimum elong	3115 May 26 02:26	4°II37'19	0°11'59	opposition	3121 Dec 24 11:36	1°☿59'16	0°10'16
behind sun begin	3115 May 25 21:53	4°II36'41		min. Earth dist.	3121 Dec 24 15:21	1°☿58'52	18.31284 AU
behind sun end	3115 May 26 06:59	4°II37'57			3122 Mar 02 06:12	30°♂II	
max. Earth dist.	3115 May 26 09:40	4°II38'20	20.72688 AU	direct	3122 Mar 09 01:27	29°II58'45	
retrograde	3115 Sep 14 05:20	8°II44'30			3122 Mar 15 22:39	0°☿	
opposition	3115 Nov 30 00:19	6°II44'00	0°-11'-27				
min. Earth dist.	3115 Nov 29 18:45	6°II44'34	18.69925 AU	conjunction	3122 Jun 25 09:46	4°☿06'17	0°10'55
direct	3116 Feb 12 16:26	4°II45'47		minimum elong	3122 Jun 25 09:45	4°☿06'17	0°10'54
				behind sun begin	3122 Jun 25 04:42	4°☿05'33	
conjunction	3116 May 29 15:00	8°II45'29	0°-8'-50	behind sun end	3122 Jun 25 14:48	4°☿07'00	
minimum elong	3116 May 29 15:00	8°II45'29	0°08'50	max. Earth dist.	3122 Jun 25 05:02	4°☿05'36	20.27881 AU
behind sun begin	3116 May 29 09:14	8°II44'41		retrograde	3122 Oct 14 09:51	8°☿19'24	
behind sun end	3116 May 29 20:45	8°II46'18		opposition	3122 Dec 28 23:16	6°☿17'36	0°13'53
max. Earth dist.	3116 May 29 21:07	8°II46'21	20.67080 AU	min. Earth dist.	3122 Dec 29 03:21	6°☿17'10	18.24435 AU
retrograde	3116 Sep 17 18:41	12°II53'27		direct	3123 Mar 13 14:45	4°☿16'42	
opposition	3116 Dec 03 09:06	10°II52'47	0°-7'-55				
min. Earth dist.	3116 Dec 03 04:17	10°II53'17	18.64108 AU	conjunction	3123 Jun 30 03:55	8°☿25'44	0°14'08
direct	3117 Feb 16 01:15	8°II54'15		minimum elong	3123 Jun 30 03:55	8°☿25'44	0°14'09
				behind sun begin	3123 Jun 30 00:49	8°☿25'17	
conjunction	3117 Jun 03 04:05	12°II55'05	0°-5'-38	behind sun end	3123 Jun 30 07:00	8°☿26'10	
minimum elong	3117 Jun 03 04:04	12°II55'05	0°05'39	max. Earth dist.	3123 Jun 29 21:14	8°☿24'45	20.21034 AU
behind sun begin	3117 Jun 02 21:37	12°II54'11		retrograde	3123 Oct 19 00:52	12°☿39'45	
behind sun end	3117 Jun 03 10:31	12°II56'00		opposition	3124 Jan 02 11:36	10°☿37'51	0°17'27
max. Earth dist.	3117 Jun 03 07:20	12°II55'31	20.61081 AU	min. Earth dist.	3124 Jan 02 18:01	10°☿37'10	18.17613 AU
retrograde	3117 Sep 22 07:11	17°II03'52		direct	3124 Mar 17 01:53	8°☿36'35	
opposition	3117 Dec 07 18:22	15°II03'00	0°-4'-20				
min. Earth dist.	3117 Dec 07 16:10	15°II03'14	18.57946 AU	conjunction	3124 Jul 03 23:03	12°☿47'09	0°17'19
direct	3118 Feb 20 09:15	13°II04'05		minimum elong	3124 Jul 03 23:03	12°☿47'09	0°17'18
				max. Earth dist.	3124 Jul 03 14:55	12°☿45'58	20.14246 AU
conjunction	3118 Jun 07 18:03	17°II06'09	0°-2'-22	retrograde	3124 Oct 22 19:25	17°☿02'07	
minimum elong	3118 Jun 07 18:03	17°II06'09	0°02'22	opposition	3125 Jan 06 00:34	15°☿00'07	0°20'57
behind sun begin	3118 Jun 07 11:20	17°II05'12		min. Earth dist.	3125 Jan 06 07:26	14°☿59'23	18.10853 AU
behind sun end	3118 Jun 08 00:46	17°II07'06		direct	3125 Mar 21 17:16	12°☿58'30	
max. Earth dist.	3118 Jun 07 20:18	17°II06'25	20.54784 AU				
retrograde	3118 Sep 26 21:32	21°II15'45		conjunction	3125 Jul 08 18:59	17°☿10'39	0°20'25
opposition	3118 Dec 12 03:53	19°II14'41	0°00'-42	minimum elong	3125 Jul 08 18:59	17°☿10'39	0°20'25
min. Earth dist.	3118 Dec 12 02:16	19°II14'51	18.51517 AU	max. Earth dist.	3125 Jul 08 09:14	17°☿09'13	20.07508 AU
asc. node	3119 Feb 22 08:55	17°II15'33		retrograde	3125 Oct 27 11:36	21°☿26'33	
direct	3119 Feb 24 19:13	17°II15'23		opposition	3126 Jan 10 14:25	19°☿24'29	0°24'21
				min. Earth dist.	3126 Jan 10 23:34	19°☿23'30	18.04155 AU
conjunction	3119 Jun 12 08:41	21°II18'43	0°01'01	direct	3126 Mar 26 06:11	17°☿22'31	
minimum elong	3119 Jun 12 08:40	21°II18'43	0°01'01				
behind sun begin	3119 Jun 12 01:56	21°II17'46		conjunction	3126 Jul 13 15:58	21°☿36'17	0°23'25
behind sun end	3119 Jun 12 15:24	21°II19'40		minimum elong	3126 Jul 13 15:58	21°☿36'17	0°23'25
max. Earth dist.	3119 Jun 12 08:22	21°II18'42	20.48244 AU	max. Earth dist.	3126 Jul 13 04:23	21°☿34'33	20.00849 AU
retrograde	3119 Oct 01 10:53	25°II29'10		retrograde	3126 Nov 01 07:35	25°☿53'06	
opposition	3119 Dec 16 14:02	23°II27'54	0°02'57	opposition	3127 Jan 15 04:48	23°☿50'58	0°27'38
min. Earth dist.	3119 Dec 16 14:57	23°II27'48	18.44886 AU	min. Earth dist.	3127 Jan 15 14:40	23°☿49'54	17.97524 AU
direct	3120 Feb 29 04:05	21°II28'12		direct	3127 Mar 30 23:20	21°☿48'39	
conjunction	3120 Jun 16 00:19	25°II32'53	0°04'22	conjunction	3127 Jul 18 14:02	26°☿04'02	0°26'19
minimum elong	3120 Jun 16 00:19	25°II32'53	0°04'22	minimum elong	3127 Jul 18 14:02	26°☿04'02	0°26'19
behind sun begin	3120 Jun 15 17:42	25°II31'56		max. Earth dist.	3127 Jul 18 00:55	26°☿02'04	19.94226 AU
behind sun end	3120 Jun 16 06:56	25°II33'49			3127 Oct 08 09:31	0°♂	
max. Earth dist.	3120 Jun 15 22:56	25°II32'43	20.41541 AU	retrograde	3127 Nov 06 01:37	0°♂21'44	
retrograde	3120 Oct 05 02:40	29°II44'11			3127 Dec 05 01:22	30°♂☿	
opposition	3120 Dec 20 00:24	27°II42'44	0°06'37	opposition	3128 Jan 19 20:13	28°☿19'31	0°30'47
min. Earth dist.	3120 Dec 20 01:48	27°II42'35	18.38120 AU	min. Earth dist.	3128 Jan 20 08:26	28°☿18'12	17.90927 AU
direct	3121 Mar 04 15:38	25°II42'37		direct	3128 Apr 03 14:40	26°☿16'51	
					3128 Jul 13 04:24	0°♂	
conjunction	3121 Jun 20 16:38	29°II48'42	0°07'39				
minimum elong	3121 Jun 20 16:39	29°II48'42	0°07'39	conjunction	3128 Jul 22 12:55	0°♂33'48	0°29'04
behind sun begin	3121 Jun 20 10:33	29°II47'49		minimum elong	3128 Jul 22 12:55	0°♂33'48	0°29'05
behind sun end	3121 Jun 20 22:44	29°II49'34		max. Earth dist.	3128 Jul 21 21:26	0°♂31'28	19.87651 AU
max. Earth dist.	3121 Jun 20 13:01	29°II48'11	20.34726 AU	retrograde	3128 Nov 09 22:32	4°♂52'22	
	3121 Jun 23 21:36	0°☿		opposition	3129 Jan 23 12:13	2°♂50'04	0°33'47



min. Earth dist.	3129 Jan 24 01:15	2°04'48"39	17.84382 AU	minimum elong	3136 Aug 30 03:36	7°03'32"17	0°43'40
direct	3129 Apr 08 09:19	0°04'46"59		retrograde	3136 Dec 17 07:54	11°03'55"51	
conjunction	3129 Jul 27 12:43	5°02'05"30	0°31'40	opposition	3137 Feb 28 22:13	9°03'52"48	0°49'04
minimum elong	3129 Jul 27 12:42	5°02'05"30	0°31'40	min. Earth dist.	3137 Mar 01 18:38	9°03'50"34	17.40581 AU
max. Earth dist.	3129 Jul 26 20:06	5°02'03"00	19.81129 AU	direct	3137 May 15 09:22	7°03'46"55	
retrograde	3129 Nov 14 18:24	9°02'24"52		max. Earth dist.	3137 Sep 03 07:48	12°03'12"10	19.38762 AU
opposition	3130 Jan 28 05:10	7°02'22"27	0°36'35	conjunction	3137 Sep 04 07:31	12°03'15"51	0°44'19
min. Earth dist.	3130 Jan 28 20:10	7°02'20"50	17.77914 AU	minimum elong	3137 Sep 04 07:31	12°03'15"51	0°44'18
direct	3130 Apr 13 02:48	5°02'18"59		retrograde	3137 Dec 22 07:56	16°03'39"48	
conjunction	3130 Aug 01 13:01	9°02'39"00	0°34'05	opposition	3138 Mar 05 20:23	14°03'36"47	0°49'38
minimum elong	3130 Aug 01 13:01	9°02'39"00	0°34'05	min. Earth dist.	3138 Mar 06 16:22	14°03'34"35	17.37167 AU
max. Earth dist.	3130 Jul 31 17:58	9°02'36"07	19.74728 AU	direct	3138 May 20 09:47	12°03'30"45	
retrograde	3130 Nov 19 16:12	13°02'59"09		max. Earth dist.	3138 Sep 08 10:57	16°03'56"47	19.35642 AU
opposition	3131 Feb 01 22:42	11°02'56"36	0°39'10	conjunction	3138 Sep 09 11:34	17°03'00"37	0°44'40
min. Earth dist.	3131 Feb 02 14:31	11°02'54"53	17.71593 AU	minimum elong	3138 Sep 09 11:34	17°03'00"37	0°44'41
direct	3131 Apr 17 22:53	9°02'52"42		retrograde	3138 Dec 27 07:24	21°03'24"53	
conjunction	3131 Aug 06 14:19	14°02'14"12	0°36'18	opposition	3139 Mar 10 19:18	19°03'21"57	0°49'52
minimum elong	3131 Aug 06 14:19	14°02'14"12	0°36'18	min. Earth dist.	3139 Mar 11 16:05	19°03'19"40	17.34341 AU
max. Earth dist.	3131 Aug 05 18:42	14°02'11"13	19.68489 AU	direct	3139 May 25 10:51	17°03'15"48	
retrograde	3131 Aug 19 03:37	15°02'00"00		conjunction	3139 Sep 14 16:00	21°03'46"30	0°44'43
opposition	3131 Nov 24 13:23	18°02'35"01		minimum elong	3139 Sep 14 16:00	21°03'46"30	0°44'42
min. Earth dist.	3132 Feb 06 16:54	16°02'32"22	0°41'32	max. Earth dist.	3139 Sep 13 16:01	21°03'42"45	19.33095 AU
direct	3132 Feb 07 10:16	16°02'30"29	17.65469 AU	retrograde	3140 Jan 01 08:14	26°03'11"00	
conjunction	3132 Mar 17 14:32	15°02'00"00		opposition	3140 Mar 14 18:41	24°03'08"10	0°49'46
minimum elong	3132 Apr 21 18:13	14°02'28"05		min. Earth dist.	3140 Mar 15 14:47	24°03'05"58	17.32058 AU
max. Earth dist.	3132 May 26 12:09	15°02'00"00		direct	3140 May 29 13:36	22°03'01"58	
conjunction	3132 Aug 10 16:01	18°02'50"59	0°38'17	conjunction	3140 Sep 18 20:31	26°03'33"21	0°44'27
minimum elong	3132 Aug 10 16:01	18°02'50"59	0°38'16	minimum elong	3140 Sep 18 20:31	26°03'33"21	0°44'28
max. Earth dist.	3132 Aug 09 18:06	18°02'47"38	19.62501 AU	max. Earth dist.	3140 Sep 17 20:13	26°03'29"33	19.31074 AU
retrograde	3132 Nov 28 11:50	23°02'12"28		retrograde	3140 Nov 20 05:57	0°02'00"00	
opposition	3133 Feb 10 11:50	21°02'09"41	0°43'37	opposition	3141 Jan 05 07:56	0°02'58"01	
min. Earth dist.	3133 Feb 11 05:57	21°02'07"43	17.59641 AU	min. Earth dist.	3141 Feb 21 20:02	30°03'00"00	
direct	3133 Apr 26 15:36	19°02'05"00		opposition	3141 Mar 19 18:51	28°03'55"17	0°49'19
conjunction	3133 Aug 15 18:14	23°02'29"15	0°40'02	min. Earth dist.	3141 Mar 20 15:52	28°03'52"59	17.30307 AU
minimum elong	3133 Aug 15 18:14	23°02'29"15	0°40'02	direct	3141 Jun 03 15:46	26°03'49"01	
max. Earth dist.	3133 Aug 14 20:30	23°02'25"55	19.56831 AU	max. Earth dist.	3141 Sep 02 06:21	0°02'00"00	
retrograde	3133 Dec 03 10:13	27°02'51"21		conjunction	3141 Sep 23 00:55	1°02'17"11	19.29575 AU
opposition	3134 Feb 15 07:28	25°02'48"27	0°45'26	minimum elong	3141 Sep 24 00:55	1°02'20"57	0°43'53
min. Earth dist.	3134 Feb 16 02:25	25°02'46"23	17.54161 AU	retrograde	3141 Sep 24 00:55	1°02'20"57	0°43'53
direct	3134 May 01 12:33	23°02'43"25		opposition	3142 Jan 10 09:47	5°02'45"40	
conjunction	3134 Aug 20 20:53	28°02'08"57	0°41'31	min. Earth dist.	3142 Mar 24 19:21	3°02'43"01	0°48'31
minimum elong	3134 Aug 20 20:53	28°02'08"57	0°41'30	direct	3142 Mar 25 15:21	3°02'40"50	17.29045 AU
max. Earth dist.	3134 Aug 19 21:13	28°02'05"18	19.51558 AU	max. Earth dist.	3142 Jun 08 20:03	1°02'36"43	
retrograde	3134 Sep 20 17:55	0°02'00"00		conjunction	3142 Sep 28 05:48	6°02'05"19	19.28549 AU
opposition	3134 Dec 08 09:11	2°02'31"35		minimum elong	3142 Sep 29 05:30	6°02'09"03	0°43'01
min. Earth dist.	3135 Feb 20 03:37	0°02'28"36	0°46'58	retrograde	3142 Sep 29 05:30	6°02'09"03	0°43'00
direct	3135 Feb 20 23:18	0°02'26"27	17.49125 AU	opposition	3143 Jan 15 09:27	10°02'33"43	
conjunction	3135 Mar 03 03:05	30°03'00"00		min. Earth dist.	3143 Mar 29 20:19	8°02'31"09	0°47'22
minimum elong	3135 May 06 11:07	28°02'23"13		direct	3143 Mar 30 17:12	8°02'28"52	17.28265 AU
max. Earth dist.	3135 Jul 07 12:49	0°02'00"00		max. Earth dist.	3143 Jun 13 22:22	6°02'24"49	
conjunction	3135 Aug 25 01:06	2°02'46"24	19.46751 AU	conjunction	3143 Oct 03 10:04	10°02'53"37	19.28015 AU
minimum elong	3135 Aug 26 00:12	2°02'49"58	0°42'44	minimum elong	3143 Oct 04 09:50	10°02'57"22	0°41'50
retrograde	3135 Dec 13 08:31	7°02'13"05		retrograde	3143 Oct 04 09:50	10°02'57"22	0°41'50
opposition	3136 Feb 25 00:35	5°02'10"04	0°48'11	opposition	3144 Jan 20 11:58	15°02'21"53	
min. Earth dist.	3136 Feb 25 20:25	5°02'07"53	17.44572 AU	min. Earth dist.	3144 Apr 02 21:36	13°02'19"24	0°45'54
direct	3136 May 10 09:33	3°02'04"25		direct	3144 Apr 03 17:10	13°02'17"16	17.27966 AU
max. Earth dist.	3136 Aug 29 03:03	7°02'28"29	19.42466 AU	conjunction	3144 Jun 18 03:13	11°02'13"03	
conjunction	3136 Aug 30 03:36	7°03'32"17	0°43'40	minimum elong	3144 Oct 08 13:49	15°02'45"40	0°40'22
					3144 Oct 08 13:49	15°02'45"40	0°40'21

max. Earth dist.	3144 Oct 07 15:17	15° <del>4</del> 42'07	19.27957 AU	minimum elong	3152 Nov 16 00:40	23° <del>ℓ</del> 46'29	0°19'58
retrograde	3145 Jan 24 11:33	20° <del>4</del> 09'57		max. Earth dist.	3152 Nov 15 13:57	23° <del>ℓ</del> 44'48	19.47582 AU
opposition	3145 Apr 07 23:17	18° <del>4</del> 07'32	0°44'06	retrograde	3153 Mar 03 03:53	28° <del>ℓ</del> 06'16	
min. Earth dist.	3145 Apr 08 19:18	18° <del>4</del> 05'21	17.28158 AU	opposition	3153 May 16 12:04	26° <del>ℓ</del> 04'47	0°20'25
direct	3145 Jun 23 05:49	16° <del>4</del> 01'10		min. Earth dist.	3153 May 16 21:05	26° <del>ℓ</del> 03'50	17.49997 AU
				direct	3153 Aug 01 13:12	23° <del>ℓ</del> 59'47	
conjunction	3145 Oct 13 17:21	20° <del>4</del> 33'41	0°38'37				
minimum elong	3145 Oct 13 17:22	20° <del>4</del> 33'41	0°38'37	conjunction	3153 Nov 20 22:43	28° <del>ℓ</del> 26'45	0°16'39
max. Earth dist.	3145 Oct 12 18:47	20° <del>4</del> 30'07	19.28415 AU	minimum elong	3153 Nov 20 22:44	28° <del>ℓ</del> 26'45	0°16'40
retrograde	3146 Jan 29 13:12	24° <del>4</del> 57'38		max. Earth dist.	3153 Nov 20 13:06	28° <del>ℓ</del> 25'15	19.52536 AU
opposition	3146 Apr 13 00:48	22° <del>4</del> 55'16	0°42'00		3153 Dec 16 05:19	0° <del>4</del>	
min. Earth dist.	3146 Apr 13 19:18	22° <del>4</del> 53'15	17.28872 AU	retrograde	3154 Mar 08 00:41	2° <del>4</del> 45'47	
direct	3146 Jun 28 10:45	20° <del>4</del> 48'55		opposition	3154 May 21 12:50	0° <del>4</del> 44'32	0°16'40
				min. Earth dist.	3154 May 21 20:45	0° <del>4</del> 43'41	17.55161 AU
conjunction	3146 Oct 18 20:35	25° <del>4</del> 21'12	0°36'35		3154 Jun 08 10:03	30° <del>ℓ</del>	
minimum elong	3146 Oct 18 20:35	25° <del>4</del> 21'12	0°36'36	direct	3154 Aug 06 14:23	28° <del>ℓ</del> 39'52	
max. Earth dist.	3146 Oct 17 23:57	25° <del>4</del> 17'56	19.29394 AU		3154 Oct 02 02:43	0° <del>4</del>	
retrograde	3147 Feb 03 12:09	29° <del>4</del> 44'43					
opposition	3147 Apr 18 02:42	27° <del>4</del> 42'24	0°39'36	conjunction	3154 Nov 25 20:07	3° <del>4</del> 05'42	0°13'15
min. Earth dist.	3147 Apr 18 21:09	27° <del>4</del> 40'24	17.30116 AU	minimum elong	3154 Nov 25 20:07	3° <del>4</del> 05'42	0°13'14
direct	3147 Jul 03 14:03	25° <del>4</del> 36'05		behind sun begin	3154 Nov 25 16:13	3° <del>4</del> 05'07	
	3147 Oct 21 20:38	0° <del>ℓ</del>		behind sun end	3154 Nov 26 00:02	3° <del>4</del> 06'18	
				max. Earth dist.	3154 Nov 25 12:44	3° <del>4</del> 04'34	19.57889 AU
conjunction	3147 Oct 23 22:57	0° <del>ℓ</del> 07'57	0°34'19	retrograde	3155 Mar 12 22:18	7° <del>4</del> 23'55	
minimum elong	3147 Oct 23 22:57	0° <del>ℓ</del> 07'57	0°34'19	opposition	3155 May 26 13:25	5° <del>4</del> 22'54	0°12'49
max. Earth dist.	3147 Oct 23 02:31	0° <del>ℓ</del> 04'44	19.30926 AU	min. Earth dist.	3155 May 26 19:13	5° <del>4</del> 22'17	17.60666 AU
retrograde	3148 Feb 08 12:27	4° <del>ℓ</del> 30'59		direct	3155 Aug 11 16:28	3° <del>4</del> 18'37	
opposition	3148 Apr 22 04:28	2° <del>ℓ</del> 28'43	0°36'56				
min. Earth dist.	3148 Apr 22 21:08	2° <del>ℓ</del> 26'55	17.31936 AU	conjunction	3155 Nov 30 16:29	7° <del>4</del> 43'13	0°09'46
direct	3148 Jul 07 19:15	0° <del>ℓ</del> 22'29		minimum elong	3155 Nov 30 16:29	7° <del>4</del> 43'13	0°09'47
max. Earth dist.	3148 Oct 27 07:03	4° <del>ℓ</del> 51'00	19.33044 AU	behind sun begin	3155 Nov 30 11:03	7° <del>4</del> 42'23	
				behind sun end	3155 Nov 30 21:55	7° <del>4</del> 44'02	
conjunction	3148 Oct 28 00:50	4° <del>ℓ</del> 53'49	0°31'49	max. Earth dist.	3155 Nov 30 10:28	7° <del>4</del> 42'17	19.63544 AU
minimum elong	3148 Oct 28 00:50	4° <del>ℓ</del> 53'49	0°31'50	retrograde	3156 Mar 16 18:20	12° <del>4</del> 00'35	
retrograde	3149 Feb 12 10:46	9° <del>ℓ</del> 16'16		opposition	3156 May 30 13:44	9° <del>4</del> 59'47	0°08'54
opposition	3149 Apr 27 06:19	7° <del>ℓ</del> 14'05	0°34'01	min. Earth dist.	3156 May 30 18:40	9° <del>4</del> 59'16	17.66465 AU
min. Earth dist.	3149 Apr 27 22:08	7° <del>ℓ</del> 12'22	17.34353 AU	direct	3156 Aug 15 16:29	7° <del>4</del> 55'52	
direct	3149 Jul 12 23:11	5° <del>ℓ</del> 07'59					
max. Earth dist.	3149 Nov 01 08:33	9° <del>ℓ</del> 35'55	19.35780 AU	conjunction	3156 Dec 04 12:05	12° <del>4</del> 19'08	0°06'16
				minimum elong	3156 Dec 04 12:05	12° <del>4</del> 19'08	0°06'16
conjunction	3149 Nov 02 01:46	9° <del>ℓ</del> 38'37	0°29'07	behind sun begin	3156 Dec 04 05:50	12° <del>4</del> 18'11	
minimum elong	3149 Nov 02 01:46	9° <del>ℓ</del> 38'37	0°29'06	behind sun end	3156 Dec 04 18:20	12° <del>4</del> 20'05	
retrograde	3150 Feb 17 09:41	14° <del>ℓ</del> 00'29		max. Earth dist.	3156 Dec 04 07:54	12° <del>4</del> 18'31	19.69465 AU
opposition	3150 May 02 07:58	11° <del>ℓ</del> 58'24	0°30'53	retrograde	3157 Mar 21 15:01	16° <del>4</del> 35'37	
min. Earth dist.	3150 May 02 21:55	11° <del>ℓ</del> 56'54	17.37399 AU	opposition	3157 Jun 04 13:23	14° <del>4</del> 35'01	0°04'57
direct	3150 Jul 18 03:22	9° <del>ℓ</del> 52'29		min. Earth dist.	3157 Jun 04 15:56	14° <del>4</del> 34'45	17.72479 AU
max. Earth dist.	3150 Nov 06 11:52	14° <del>ℓ</del> 20'06	19.39135 AU	direct	3157 Aug 20 17:08	12° <del>4</del> 31'28	
conjunction	3150 Nov 07 02:15	14° <del>ℓ</del> 22'22	0°26'13	conjunction	3157 Dec 09 06:48	16° <del>4</del> 53'21	0°02'43
minimum elong	3150 Nov 07 02:15	14° <del>ℓ</del> 22'22	0°26'13	minimum elong	3157 Dec 09 06:47	16° <del>4</del> 53'21	0°02'42
	3150 Nov 17 01:29	15° <del>ℓ</del>		behind sun begin	3157 Dec 09 00:12	16° <del>4</del> 52'21	
retrograde	3151 Feb 22 07:55	18° <del>ℓ</del> 43'33		behind sun end	3157 Dec 09 13:22	16° <del>4</del> 54'20	
opposition	3151 May 07 09:28	16° <del>ℓ</del> 41'39	0°27'33	max. Earth dist.	3157 Dec 09 04:12	16° <del>4</del> 53'00	19.75566 AU
min. Earth dist.	3151 May 07 21:58	16° <del>ℓ</del> 40'19	17.41043 AU	retrograde	3158 Mar 26 09:58	21° <del>4</del> 08'56	
	3151 Jun 22 11:13	15° <del>ℓ</del>		opposition	3158 Jun 09 12:41	19° <del>4</del> 08'29	0°01'00
direct	3151 Jul 23 07:13	14° <del>ℓ</del> 35'59		min. Earth dist.	3158 Jun 09 14:37	19° <del>4</del> 08'17	17.78661 AU
	3151 Aug 22 14:19	15° <del>ℓ</del>		direct	3158 Aug 25 15:59	17° <del>4</del> 05'18	
				desc. node	3158 Sep 10 15:24	17° <del>4</del> 11'53	
conjunction	3151 Nov 12 01:51	19° <del>ℓ</del> 05'00	0°23'10				
minimum elong	3151 Nov 12 01:51	19° <del>ℓ</del> 05'00	0°23'10	conjunction	3158 Dec 14 00:32	21° <del>4</del> 25'42	0°00'-55
max. Earth dist.	3151 Nov 11 12:21	19° <del>ℓ</del> 02'53	19.43084 AU	minimum elong	3158 Dec 14 00:31	21° <del>4</del> 25'42	0°00'56
retrograde	3152 Feb 27 05:48	23° <del>ℓ</del> 25'31		behind sun begin	3158 Dec 13 17:57	21° <del>4</del> 24'43	
opposition	3152 May 11 10:54	21° <del>ℓ</del> 23'48	0°24'04	behind sun end	3158 Dec 14 07:06	21° <del>4</del> 26'42	
min. Earth dist.	3152 May 11 21:45	21° <del>ℓ</del> 22'38	17.45273 AU	max. Earth dist.	3158 Dec 13 23:21	21° <del>4</del> 25'35	19.81818 AU
direct	3152 Jul 27 09:57	19° <del>ℓ</del> 18'26		retrograde	3159 Mar 31 05:18	25° <del>4</del> 40'21	
				opposition	3159 Jun 14 11:14	23° <del>4</del> 40'03	0°-2'-56
conjunction	3152 Nov 16 00:40	23° <del>ℓ</del> 46'29	0°19'58	min. Earth dist.	3159 Jun 14 10:37	23° <del>4</del> 40'07	17.84963 AU

direct	3159 Aug 30 15:50	21° $\overline{2}$ 37'12		direct	3166 Oct 01 09:41	22° $\overline{3}$ 23'06	
conjunction	3159 Dec 18 17:22	25° $\overline{2}$ 56'06	0°-4'-29	conjunction	3167 Jan 17 12:37	26° $\overline{3}$ 31'12	0°-26'-33
minimum elong	3159 Dec 18 17:22	25° $\overline{2}$ 56'06	0°04'30	minimum elong	3167 Jan 17 12:37	26° $\overline{3}$ 31'12	0°26'34
behind sun begin	3159 Dec 18 10:55	25° $\overline{2}$ 55'07		max. Earth dist.	3167 Jan 18 01:18	26° $\overline{3}$ 33'06	20.35710 AU
behind sun end	3159 Dec 18 23:49	25° $\overline{2}$ 57'04			3167 Mar 27 07:17	0° $\approx$	
max. Earth dist.	3159 Dec 18 18:12	25° $\overline{2}$ 56'12	19.88178 AU	retrograde	3167 May 05 06:33	0° $\approx$ 38'36	
	3160 Mar 15 19:53	0° $\overline{3}$			3167 Jun 14 13:37	30° $\overline{R}$ $\overline{3}$	
retrograde	3160 Apr 03 22:10	0° $\overline{3}$ 09'47		opposition	3167 Jul 20 23:02	28° $\overline{3}$ 39'16	0°-30'-53
	3160 Apr 23 07:17	30° $\overline{R}$ $\overline{2}$		min. Earth dist.	3167 Jul 20 09:00	28° $\overline{3}$ 40'42	18.39145 AU
opposition	3160 Jun 18 09:22	28° $\overline{2}$ 09'36	0°-6'-49	direct	3167 Oct 06 01:30	26° $\overline{3}$ 39'20	
min. Earth dist.	3160 Jun 18 08:08	28° $\overline{2}$ 09'43	17.91385 AU		3168 Jan 09 01:48	0° $\approx$	
direct	3160 Sep 03 13:54	26° $\overline{2}$ 07'04					
	3160 Dec 15 18:22	0° $\overline{3}$		conjunction	3168 Jan 21 22:39	0° $\approx$ 46'01	0°-29'-10
				minimum elong	3168 Jan 21 22:39	0° $\approx$ 46'01	0°29'10
conjunction	3160 Dec 22 09:02	0° $\overline{3}$ 24'24	0°-7'-56	max. Earth dist.	3168 Jan 22 13:45	0° $\approx$ 48'16	20.42559 AU
minimum elong	3160 Dec 22 09:02	0° $\overline{3}$ 24'24	0°07'57	retrograde	3168 May 08 18:06	4° $\approx$ 52'39	
behind sun begin	3160 Dec 22 03:07	0° $\overline{3}$ 23'31		opposition	3168 Jul 24 15:26	2° $\approx$ 53'29	0°-33'-41
behind sun end	3160 Dec 22 14:56	0° $\overline{3}$ 25'17		min. Earth dist.	3168 Jul 24 00:53	2° $\approx$ 54'57	18.45920 AU
max. Earth dist.	3160 Dec 22 11:11	0° $\overline{3}$ 24'42	19.94661 AU	direct	3168 Oct 09 16:11	0° $\approx$ 53'57	
retrograde	3161 Apr 08 16:03	4° $\overline{3}$ 37'08					
opposition	3161 Jun 23 06:33	2° $\overline{3}$ 37'01	0°-10'-38	conjunction	3169 Jan 25 07:52	4° $\approx$ 59'14	0°-31'-36
min. Earth dist.	3161 Jun 23 02:34	2° $\overline{3}$ 37'26	17.97917 AU	minimum elong	3169 Jan 25 07:52	4° $\approx$ 59'14	0°31'37
direct	3161 Sep 08 12:19	0° $\overline{3}$ 34'48		max. Earth dist.	3169 Jan 25 23:12	5° $\approx$ 01'31	20.49238 AU
				retrograde	3169 May 13 07:29	9° $\approx$ 05'09	
conjunction	3161 Dec 26 23:53	4° $\overline{3}$ 50'33	0°-11'-19	opposition	3169 Jul 29 07:05	7° $\approx$ 06'08	0°-36'-17
minimum elong	3161 Dec 26 23:53	4° $\overline{3}$ 50'33	0°11'20	min. Earth dist.	3169 Jul 28 14:50	7° $\approx$ 07'46	18.52490 AU
behind sun begin	3161 Dec 26 19:01	4° $\overline{3}$ 49'50		direct	3169 Oct 14 05:56	5° $\approx$ 06'58	
behind sun end	3161 Dec 27 04:44	4° $\overline{3}$ 51'17					
max. Earth dist.	3161 Dec 27 04:26	4° $\overline{3}$ 51'14	20.01246 AU	conjunction	3170 Jan 29 16:43	9° $\approx$ 10'57	0°-33'-52
retrograde	3162 Apr 13 06:44	9° $\overline{3}$ 02'19		minimum elong	3170 Jan 29 16:42	9° $\approx$ 10'57	0°33'53
opposition	3162 Jun 28 03:04	7° $\overline{3}$ 02'18	0°-14'-21	max. Earth dist.	3170 Jan 30 10:06	9° $\approx$ 13'31	20.55658 AU
min. Earth dist.	3162 Jun 27 22:23	7° $\overline{3}$ 02'47	18.04572 AU	retrograde	3170 May 17 18:17	13° $\approx$ 16'10	
direct	3162 Sep 13 08:54	5° $\overline{3}$ 00'25		opposition	3170 Aug 02 22:06	11° $\approx$ 17'16	0°-38'-40
				min. Earth dist.	3170 Aug 02 05:29	11° $\approx$ 18'56	18.58764 AU
conjunction	3162 Dec 31 13:43	9° $\overline{3}$ 14'35	0°-14'-36	direct	3170 Oct 18 19:38	9° $\approx$ 18'28	
minimum elong	3162 Dec 31 13:43	9° $\overline{3}$ 14'35	0°14'38				
behind sun begin	3162 Dec 31 10:46	9° $\overline{3}$ 14'08		conjunction	3171 Feb 03 00:52	13° $\approx$ 21'10	0°-35'-56
behind sun end	3162 Dec 31 16:40	9° $\overline{3}$ 15'01		minimum elong	3171 Feb 03 00:52	13° $\approx$ 21'10	0°35'57
max. Earth dist.	3162 Dec 31 19:29	9° $\overline{3}$ 15'27	20.07972 AU	max. Earth dist.	3171 Feb 03 18:04	13° $\approx$ 23'42	20.61772 AU
retrograde	3163 Apr 17 23:09	13° $\overline{3}$ 25'24			3171 Mar 03 15:13	15° $\approx$	
opposition	3163 Jul 02 22:52	11° $\overline{3}$ 25'28	0°-17'-58	retrograde	3171 May 22 06:32	17° $\approx$ 25'45	
min. Earth dist.	3163 Jul 02 15:15	11° $\overline{3}$ 26'15	18.11363 AU	opposition	3171 Aug 07 12:33	15° $\approx$ 26'56	0°-40'-51
direct	3163 Sep 18 05:26	9° $\overline{3}$ 23'56		min. Earth dist.	3171 Aug 06 18:37	15° $\approx$ 28'44	18.64712 AU
					3171 Aug 18 18:53	15° $\overline{R}$ $\approx$	
conjunction	3164 Jan 05 02:38	13° $\overline{3}$ 36'32	0°-17'-47	direct	3171 Oct 23 07:41	13° $\approx$ 28'26	
minimum elong	3164 Jan 05 02:38	13° $\overline{3}$ 36'32	0°17'48		3171 Dec 23 18:35	15° $\approx$	
max. Earth dist.	3164 Jan 05 11:07	13° $\overline{3}$ 37'49	20.14817 AU				
retrograde	3164 Apr 21 12:26	17° $\overline{3}$ 46'27		conjunction	3172 Feb 07 08:36	17° $\approx$ 29'55	0°-37'-48
opposition	3164 Jul 06 18:06	15° $\overline{3}$ 46'39	0°-21'-26	minimum elong	3172 Feb 07 08:36	17° $\approx$ 29'55	0°37'50
min. Earth dist.	3164 Jul 06 09:36	15° $\overline{3}$ 47'32	18.18268 AU	max. Earth dist.	3172 Feb 08 03:38	17° $\approx$ 32'43	20.67522 AU
direct	3164 Sep 21 23:36	13° $\overline{3}$ 45'30		retrograde	3172 May 25 16:30	21° $\approx$ 33'53	
				min. Earth dist.	3172 Aug 10 08:05	19° $\approx$ 36'57	18.70266 AU
conjunction	3165 Jan 08 14:44	17° $\overline{3}$ 56'34	0°-20'-51	opposition	3172 Aug 11 02:20	19° $\approx$ 35'07	0°-42'-48
minimum elong	3165 Jan 08 14:44	17° $\overline{3}$ 56'34	0°20'52	direct	3172 Oct 26 20:06	17° $\approx$ 36'55	
max. Earth dist.	3165 Jan 09 00:11	17° $\overline{3}$ 57'59	20.21769 AU				
retrograde	3165 Apr 26 03:53	22° $\overline{3}$ 05'36		conjunction	3173 Feb 10 15:44	21° $\approx$ 37'12	0°-39'-28
opposition	3165 Jul 11 12:16	20° $\overline{3}$ 05'56	0°-24'-45	minimum elong	3173 Feb 10 15:44	21° $\approx$ 37'12	0°39'28
min. Earth dist.	3165 Jul 11 01:10	20° $\overline{3}$ 07'04	18.25249 AU	max. Earth dist.	3173 Feb 11 10:18	21° $\approx$ 39'56	20.72881 AU
direct	3165 Sep 26 17:34	18° $\overline{3}$ 05'11		retrograde	3173 May 30 03:34	25° $\approx$ 40'35	
				opposition	3173 Aug 15 15:13	23° $\approx$ 41'51	0°-44'-30
conjunction	3166 Jan 13 02:09	22° $\overline{3}$ 14'45	0°-23'-46	min. Earth dist.	3173 Aug 14 20:05	23° $\approx$ 43'45	18.75437 AU
minimum elong	3166 Jan 13 02:09	22° $\overline{3}$ 14'45	0°23'46	direct	3173 Oct 31 06:52	21° $\approx$ 43'52	
max. Earth dist.	3166 Jan 13 14:11	22° $\overline{3}$ 16'34	20.28753 AU				
retrograde	3166 Apr 30 16:00	26° $\overline{3}$ 22'56		conjunction	3174 Feb 14 22:27	25° $\approx$ 43'02	0°-40'-55
opposition	3166 Jul 16 06:01	24° $\overline{3}$ 23'27	0°-27'-54	minimum elong	3174 Feb 14 22:27	25° $\approx$ 43'02	0°40'57
min. Earth dist.	3166 Jul 15 18:14	24° $\overline{3}$ 24'39	18.32227 AU	max. Earth dist.	3174 Feb 15 18:47	25° $\approx$ 46'00	20.77852 AU

retrograde	3174 Jun 03 12:28	29° <del>44</del> 45'51			3182 Apr 27 06:49	0° <del>50</del> °	
min. Earth dist.	3174 Aug 19 08:00	27° <del>44</del> 49'04	18.80222 AU	retrograde	3182 Jul 06 10:08	1° <del>50</del> °51'08	
opposition	3174 Aug 20 03:35	27° <del>44</del> 47'07	0°-45'-59		3182 Sep 19 05:54	30° <del>48</del> °	
direct	3174 Nov 04 17:30	25° <del>44</del> 49'21		min. Earth dist.	3182 Sep 21 11:31	29° <del>48</del> °54'39	19.06815 AU
				opposition	3182 Sep 22 10:13	29° <del>48</del> °52'23	0°-49'-3
conjunction	3175 Feb 19 04:21	29° <del>44</del> 47'26	0°-42'-9	direct	3182 Dec 07 07:38	27° <del>48</del> °56'06	
minimum elong	3175 Feb 19 04:21	29° <del>44</del> 47'26	0°42'10		3183 Feb 18 00:25	0° <del>50</del> °	
max. Earth dist.	3175 Feb 20 00:25	29° <del>44</del> 50'22	20.82467 AU				
	3175 Feb 22 18:20	0° <del>48</del> °		conjunction	3183 Mar 22 19:57	1° <del>50</del> °48'47	0°-44'-7
retrograde	3175 Jun 07 22:36	3° <del>48</del> °49'47		minimum elong	3183 Mar 22 19:57	1° <del>50</del> °48'47	0°44'08
opposition	3175 Aug 24 15:20	1° <del>48</del> °51'00	0°-47'-13	max. Earth dist.	3183 Mar 23 19:04	1° <del>50</del> °52'06	21.07596 AU
min. Earth dist.	3175 Aug 23 18:53	1° <del>48</del> °53'03	18.84685 AU	retrograde	3183 Jul 10 18:05	5° <del>50</del> °49'25	
	3175 Oct 23 22:45	30° <del>48</del> °		opposition	3183 Sep 26 18:24	3° <del>50</del> °50'38	0°-48'-21
direct	3175 Nov 09 03:13	29° <del>44</del> 53'26		min. Earth dist.	3183 Sep 25 20:27	3° <del>50</del> °52'50	19.08330 AU
	3175 Nov 25 04:34	0° <del>48</del> °		direct	3183 Dec 11 12:33	1° <del>50</del> °54'27	
conjunction	3176 Feb 23 10:08	3° <del>48</del> °50'32	0°-43'-10	conjunction	3184 Mar 26 01:00	5° <del>50</del> °46'52	0°-43'-24
minimum elong	3176 Feb 23 10:08	3° <del>48</del> °50'32	0°43'11	minimum elong	3184 Mar 26 01:00	5° <del>50</del> °46'52	0°43'25
max. Earth dist.	3176 Feb 24 08:05	3° <del>48</del> °53'44	20.86764 AU	max. Earth dist.	3184 Mar 27 00:45	5° <del>50</del> °50'15	21.08833 AU
retrograde	3176 Jun 11 07:03	7° <del>48</del> °52'26		retrograde	3184 Jul 14 01:47	9° <del>50</del> °47'31	
min. Earth dist.	3176 Aug 27 05:14	5° <del>48</del> °55'45	18.88834 AU	min. Earth dist.	3184 Sep 29 04:21	7° <del>50</del> °50'52	19.09281 AU
opposition	3176 Aug 28 02:17	5° <del>48</del> °53'38	0°-48'-12	opposition	3184 Sep 30 02:05	7° <del>50</del> °48'42	0°-47'-27
direct	3176 Nov 12 12:07	3° <del>48</del> °56'16		direct	3184 Dec 14 19:28	5° <del>50</del> °52'34	
conjunction	3177 Feb 26 15:24	7° <del>48</del> °52'28	0°-43'-57	conjunction	3185 Mar 30 06:02	9° <del>50</del> °44'46	0°-42'-28
minimum elong	3177 Feb 26 15:23	7° <del>48</del> °52'28	0°43'58	minimum elong	3185 Mar 30 06:02	9° <del>50</del> °44'46	0°42'29
max. Earth dist.	3177 Feb 27 12:56	7° <del>48</del> °55'35	20.90768 AU	max. Earth dist.	3185 Mar 31 03:57	9° <del>50</del> °47'54	21.09499 AU
retrograde	3177 Jun 15 16:18	11° <del>48</del> °54'00		retrograde	3185 Jul 18 10:00	13° <del>50</del> °45'30	
opposition	3177 Sep 01 12:45	9° <del>48</del> °55'12	0°-48'-56	opposition	3185 Oct 04 09:44	11° <del>50</del> °46'36	0°-46'-18
min. Earth dist.	3177 Aug 31 15:06	9° <del>48</del> °57'22	18.92698 AU	min. Earth dist.	3185 Oct 03 13:07	11° <del>50</del> °48'40	19.09657 AU
direct	3177 Nov 16 20:26	7° <del>48</del> °58'01		direct	3185 Dec 19 00:03	9° <del>50</del> °50'28	
conjunction	3178 Mar 02 20:28	11° <del>48</del> °53'25	0°-44'-31	conjunction	3186 Apr 03 11:12	13° <del>50</del> °42'32	0°-41'-20
minimum elong	3178 Mar 02 20:28	11° <del>48</del> °53'25	0°44'32	minimum elong	3186 Apr 03 11:12	13° <del>50</del> °42'32	0°41'22
max. Earth dist.	3178 Mar 03 19:45	11° <del>48</del> °56'47	20.94470 AU	max. Earth dist.	3186 Apr 04 09:33	13° <del>50</del> °45'43	21.09582 AU
retrograde	3178 Jun 20 00:44	15° <del>48</del> °54'38		retrograde	3186 Jul 22 17:06	17° <del>50</del> °43'22	
opposition	3178 Sep 05 22:39	13° <del>48</del> °55'50	0°-49'-26	opposition	3186 Oct 08 17:04	15° <del>50</del> °44'21	0°-44'-56
min. Earth dist.	3178 Sep 05 00:23	13° <del>48</del> °58'04	18.96244 AU	min. Earth dist.	3186 Oct 07 20:39	15° <del>50</del> °46'24	19.09447 AU
direct	3178 Nov 21 04:28	11° <del>48</del> °58'52		direct	3186 Dec 23 06:34	13° <del>50</del> °48'11	
conjunction	3179 Mar 07 01:14	15° <del>48</del> °53'32	0°-44'-52	conjunction	3187 Apr 07 16:27	17° <del>50</del> °40'10	0°-40'-1
minimum elong	3179 Mar 07 01:13	15° <del>48</del> °53'32	0°44'54	minimum elong	3187 Apr 07 16:27	17° <del>50</del> °40'10	0°40'01
max. Earth dist.	3179 Mar 07 23:58	15° <del>48</del> °56'49	20.97864 AU	max. Earth dist.	3187 Apr 08 13:01	17° <del>50</del> °43'06	21.09112 AU
retrograde	3179 Jun 24 09:18	19° <del>48</del> °54'32		retrograde	3187 Jul 27 01:13	21° <del>50</del> °41'10	
min. Earth dist.	3179 Sep 09 09:41	17° <del>48</del> °57'59	18.99481 AU	min. Earth dist.	3187 Oct 12 05:02	19° <del>50</del> °43'55	19.08722 AU
opposition	3179 Sep 10 08:12	17° <del>48</del> °55'44	0°-49'-42	opposition	3187 Oct 13 00:12	19° <del>50</del> °42'00	0°-43'-21
direct	3179 Nov 25 11:21	15° <del>48</del> °58'57		direct	3187 Dec 27 11:00	17° <del>50</del> °45'44	
conjunction	3180 Mar 10 05:59	19° <del>48</del> °53'00	0°-45'00	conjunction	3188 Apr 10 22:02	21° <del>50</del> °37'45	0°-38'-29
minimum elong	3180 Mar 10 05:59	19° <del>48</del> °53'00	0°45'01	minimum elong	3188 Apr 10 22:02	21° <del>50</del> °37'46	0°38'31
max. Earth dist.	3180 Mar 11 06:14	19° <del>48</del> °56'30	21.00918 AU	max. Earth dist.	3188 Apr 11 19:04	21° <del>50</del> °40'45	21.08141 AU
retrograde	3180 Jun 27 17:57	23° <del>48</del> °53'48		retrograde	3188 Jul 30 08:32	25° <del>50</del> °38'57	
opposition	3180 Sep 13 17:14	21° <del>48</del> °55'02	0°-49'-43	opposition	3188 Oct 16 07:01	23° <del>50</del> °39'38	0°-41'-34
min. Earth dist.	3180 Sep 12 18:21	21° <del>48</del> °57'19	19.02342 AU	min. Earth dist.	3188 Oct 15 12:01	23° <del>50</del> °41'33	19.07511 AU
direct	3180 Nov 28 18:49	19° <del>48</del> °58'27		direct	3188 Dec 30 16:52	21° <del>50</del> °43'17	
conjunction	3181 Mar 14 10:35	23° <del>48</del> °51'57	0°-44'-56	conjunction	3189 Apr 15 03:41	25° <del>50</del> °35'25	0°-36'-46
minimum elong	3181 Mar 14 10:35	23° <del>48</del> °51'57	0°44'57	minimum elong	3189 Apr 15 03:41	25° <del>50</del> °35'25	0°36'47
max. Earth dist.	3181 Mar 15 09:53	23° <del>48</del> °55'18	21.03587 AU	max. Earth dist.	3189 Apr 15 22:56	25° <del>50</del> °38'09	21.06718 AU
retrograde	3181 Jul 02 01:47	27° <del>48</del> °52'38		retrograde	3189 Aug 03 16:18	29° <del>50</del> °36'53	
min. Earth dist.	3181 Sep 17 03:16	25° <del>48</del> °56'08	19.04809 AU	opposition	3189 Oct 20 13:44	27° <del>50</del> °37'25	0°-39'-35
opposition	3181 Sep 18 01:50	25° <del>48</del> °53'53	0°-49'-30	min. Earth dist.	3189 Oct 19 20:03	27° <del>50</del> °39'12	19.05887 AU
direct	3181 Dec 03 00:27	23° <del>48</del> °57'27		direct	3190 Jan 03 21:10	25° <del>50</del> °40'56	
conjunction	3182 Mar 18 15:22	27° <del>48</del> °50'30	0°-44'-38	conjunction	3190 Apr 19 09:48	29° <del>50</del> °33'19	0°-34'-53
minimum elong	3182 Mar 18 15:22	27° <del>48</del> °50'30	0°44'38	minimum elong	3190 Apr 19 09:48	29° <del>50</del> °33'19	0°34'54
max. Earth dist.	3182 Mar 19 15:47	27° <del>48</del> °54'01	21.05829 AU	max. Earth dist.	3190 Apr 20 05:31	29° <del>50</del> °36'08	21.04900 AU

	3190 Apr 27 05:03	0°♄	direct	3198 Feb 04 16:11	27°♄47'59	
retrograde	3190 Aug 08 00:34	3°♄35'07		3198 Apr 20 15:11	0°♄	
opposition	3190 Oct 24 20:22	1°♄35'31 0°-37'-24				
min. Earth dist.	3190 Oct 24 02:44	1°♄37'18 19.03877 AU	conjunction	3198 May 22 05:20	1°♄45'40 0°-14'-27	
	3190 Dec 09 22:18	30°♄♂	minimum elong	3198 May 22 05:20	1°♄45'40 0°14'28	
direct	3191 Jan 08 02:48	29°♄♂38'56	behind sun begin	3198 May 22 02:28	1°♄45'16	
	3191 Feb 05 17:35	0°♄	behind sun end	3198 May 22 08:11	1°♄46'04	
			max. Earth dist.	3198 May 22 15:14	1°♄47'05 20.77413 AU	
conjunction	3191 Apr 23 16:03	3°♄31'38 0°-32'-50	retrograde	3198 Sep 10 08:12	5°♄52'12	
minimum elong	3191 Apr 23 16:03	3°♄31'38 0°32'51	opposition	3198 Nov 26 06:10	3°♄51'51 0°-14'-14	
max. Earth dist.	3191 Apr 24 09:57	3°♄34'11 21.02718 AU	min. Earth dist.	3198 Nov 25 22:01	3°♄52'41 18.74829 AU	
retrograde	3191 Aug 12 08:29	7°♄33'51	direct	3199 Feb 09 00:19	1°♄53'56	
min. Earth dist.	3191 Oct 28 10:55	5°♄35'45 19.01522 AU				
opposition	3191 Oct 29 03:07	5°♄34'07 0°-35'-2	conjunction	3199 May 26 16:52	5°♄52'37 0°-11'-22	
direct	3192 Jan 12 06:57	3°♄37'24	minimum elong	3199 May 26 16:52	5°♄52'37 0°11'23	
			behind sun begin	3199 May 26 12:02	5°♄51'56	
conjunction	3192 Apr 26 23:03	7°♄30'33 0°-30'-37	behind sun end	3199 May 26 21:42	5°♄53'18	
minimum elong	3192 Apr 26 23:03	7°♄30'33 0°30'37	max. Earth dist.	3199 May 26 23:51	5°♄53'36 20.72157 AU	
max. Earth dist.	3192 Apr 27 17:12	7°♄33'08 21.00191 AU	retrograde	3199 Sep 14 19:24	9°♄59'53	
retrograde	3192 Aug 15 17:42	11°♄33'13	opposition	3199 Nov 30 14:46	7°♄59'21 0°-10'-46	
opposition	3192 Nov 01 09:37	9°♄33'24 0°-32'-31	min. Earth dist.	3199 Nov 30 09:10	7°♄59'56 18.69367 AU	
min. Earth dist.	3192 Oct 31 17:39	9°♄35'01 18.98815 AU	direct	3200 Feb 13 06:33	6°♄01'07	
direct	3193 Jan 15 12:44	7°♄36'34				
			conjunction	3200 May 30 05:21	10°♄00'51 0°-8'-13	
conjunction	3193 May 01 06:22	11°♄30'15 0°-28'-15	minimum elong	3200 May 30 05:20	10°♄00'51 0°08'14	
minimum elong	3193 May 01 06:22	11°♄30'15 0°28'16	behind sun begin	3200 May 29 23:25	10°♄00'01	
max. Earth dist.	3193 May 01 22:26	11°♄32'33 20.97323 AU	behind sun end	3200 May 30 11:15	10°♄01'41	
	3193 Jul 13 19:09	15°♄	max. Earth dist.	3200 May 30 11:28	10°♄01'43 20.66509 AU	
retrograde	3193 Aug 20 02:05	15°♄33'27	retrograde	3200 Sep 18 09:14	14°♄08'51	
	3193 Sep 27 01:07	15°♄♂	opposition	3200 Dec 03 23:22	12°♄08'08 0°-7'-14	
opposition	3193 Nov 05 16:32	13°♄33'33 0°-29'-49	min. Earth dist.	3200 Dec 03 18:31	12°♄08'38 18.63537 AU	
min. Earth dist.	3193 Nov 05 02:13	13°♄35'00 18.95779 AU	direct	3201 Feb 16 16:08	10°♄09'32	
direct	3194 Jan 19 16:54	11°♄36'36				
	3194 Apr 26 13:47	15°♄	conjunction	3201 Jun 03 18:20	14°♄10'24 0°-5'00	
			minimum elong	3201 Jun 03 18:20	14°♄10'24 0°05'01	
conjunction	3194 May 05 14:16	15°♄30'55 0°-25'-44	behind sun begin	3201 Jun 03 11:48	14°♄09'29	
minimum elong	3194 May 05 14:16	15°♄30'55 0°25'45	behind sun end	3201 Jun 04 00:52	14°♄11'19	
max. Earth dist.	3194 May 06 06:26	15°♄33'13 20.94118 AU	max. Earth dist.	3201 Jun 03 21:44	14°♄10'51 20.60530 AU	
retrograde	3194 Aug 24 12:17	19°♄34'42	retrograde	3201 Sep 22 20:50	18°♄19'11	
opposition	3194 Nov 09 23:31	17°♄34'44 0°-26'-58	opposition	3201 Dec 08 08:39	16°♄18'14 0°-3'-38	
min. Earth dist.	3194 Nov 09 09:30	17°♄36'09 18.92388 AU	min. Earth dist.	3201 Dec 08 06:14	16°♄18'30 18.57427 AU	
direct	3195 Jan 23 23:03	15°♄37'40	direct	3202 Feb 20 23:17	14°♄19'15	
conjunction	3195 May 09 22:50	19°♄32'41 0°-23'-6	conjunction	3202 Jun 08 08:06	18°♄21'18 0°-1'-44	
minimum elong	3195 May 09 22:50	19°♄32'41 0°23'08	minimum elong	3202 Jun 08 08:06	18°♄21'18 0°01'45	
max. Earth dist.	3195 May 10 12:40	19°♄34'40 20.90555 AU	behind sun begin	3202 Jun 08 01:22	18°♄20'21	
retrograde	3195 Aug 28 21:47	23°♄37'07	behind sun end	3202 Jun 08 14:50	18°♄22'15	
opposition	3195 Nov 14 06:45	21°♄37'05 0°-23'-58	max. Earth dist.	3202 Jun 08 10:49	18°♄21'38 20.54310 AU	
min. Earth dist.	3195 Nov 13 18:49	21°♄38'18 18.88638 AU	retrograde	3202 Sep 27 11:44	22°♄30'52	
direct	3196 Jan 28 03:49	19°♄39'51	opposition	3202 Dec 12 18:08	20°♄29'43 0°00'00	
			min. Earth dist.	3202 Dec 12 16:15	20°♄29'55 18.51101 AU	
conjunction	3196 May 13 08:21	23°♄35'42 0°-20'-19	asc. node	3202 Dec 15 01:47	20°♄23'54	
minimum elong	3196 May 13 08:21	23°♄35'42 0°20'20	direct	3203 Feb 25 09:56	18°♄30'21	
max. Earth dist.	3196 May 13 21:46	23°♄37'37 20.86608 AU				
retrograde	3196 Sep 01 09:08	27°♄40'48	conjunction	3203 Jun 12 22:40	22°♄33'38 0°01'39	
opposition	3196 Nov 17 14:11	25°♄40'42 0°-20'-51	minimum elong	3203 Jun 12 22:42	22°♄33'38 0°01'40	
min. Earth dist.	3196 Nov 17 02:54	25°♄41'51 18.84473 AU	behind sun begin	3203 Jun 12 15:57	22°♄32'41	
direct	3197 Jan 31 10:35	23°♄43'17	behind sun end	3203 Jun 13 05:26	22°♄34'35	
			max. Earth dist.	3203 Jun 12 22:51	22°♄33'39 20.47900 AU	
conjunction	3197 May 17 18:20	27°♄40'01 0°-17'-26	retrograde	3203 Oct 02 00:22	26°♄44'02	
minimum elong	3197 May 17 18:21	27°♄40'01 0°17'27	opposition	3203 Dec 17 04:07	24°♄42'41 0°03'38	
max. Earth dist.	3197 May 18 05:00	27°♄41'33 20.82229 AU	min. Earth dist.	3203 Dec 17 04:41	24°♄42'37 18.44629 AU	
	3197 Jun 29 20:09	0°♄	direct	3204 Feb 29 18:37	22°♄42'54	
retrograde	3197 Sep 05 19:38	1°♄45'51				
	3197 Nov 16 01:45	30°♄♂	conjunction	3204 Jun 16 14:16	26°♄47'31 0°04'58	
opposition	3197 Nov 21 22:05	29°♄45'37 0°-17'-35	minimum elong	3204 Jun 16 14:16	26°♄47'31 0°04'58	
min. Earth dist.	3197 Nov 21 13:10	29°♄46'32 18.79876 AU	behind sun begin	3204 Jun 16 07:43	26°♄46'35	

behind sun end	3204 Jun 16 20:50	26°II48'27			3211 Sep 05 17:44	0°♈	
max. Earth dist.	3204 Jun 16 13:33	26°II47'26	20.41378 AU	retrograde	3211 Nov 06 16:04	1°♈35'01	
	3204 Aug 17 16:32	0°♊			3212 Jan 09 20:03	30°♈♊	
retrograde	3204 Oct 05 16:00	0°♊58'45		opposition	3212 Jan 20 10:17	29°♊32'52	0°31'21
	3204 Nov 24 11:59	30°♈II		min. Earth dist.	3212 Jan 20 22:25	29°♊31'34	17.92025 AU
opposition	3204 Dec 20 14:33	28°II57'13	0°07'17	direct	3212 Apr 04 04:29	27°♊30'16	
min. Earth dist.	3204 Dec 20 15:29	28°II57'07	18.38065 AU		3212 Jun 22 15:41	0°♈	
direct	3205 Mar 05 06:09	26°II57'04		max. Earth dist.	3212 Jul 22 11:18	1°♈44'44	19.88746 AU
	3205 Jun 03 04:50	0°♊					
				conjunction	3212 Jul 23 02:45	1°♈47'03	0°29'34
conjunction	3205 Jun 21 06:23	1°♊03'02	0°08'15	minimum elong	3212 Jul 23 02:45	1°♈47'03	0°29'33
minimum elong	3205 Jun 21 06:23	1°♊03'02	0°08'15	retrograde	3212 Nov 10 12:24	6°♈05'28	
behind sun begin	3205 Jun 21 00:26	1°♊02'11		opposition	3213 Jan 24 02:16	4°♈03'12	0°34'18
behind sun end	3205 Jun 21 12:19	1°♊03'53		min. Earth dist.	3213 Jan 24 15:07	4°♈01'49	17.85468 AU
max. Earth dist.	3205 Jun 21 03:23	1°♊02'37	20.34781 AU	direct	3213 Apr 08 23:06	2°♈00'12	
retrograde	3205 Oct 10 06:08	5°♊15'09		max. Earth dist.	3213 Jul 27 09:34	6°♈16'01	19.82209 AU
opposition	3205 Dec 25 01:44	3°♊13'29	0°10'56				
min. Earth dist.	3205 Dec 25 04:57	3°♊13'08	18.31462 AU	conjunction	3213 Jul 28 02:14	6°♈18'32	0°32'07
direct	3206 Mar 09 16:19	1°♊12'56		minimum elong	3213 Jul 28 02:14	6°♈18'32	0°32'08
				retrograde	3213 Nov 15 07:49	10°♈37'45	
conjunction	3206 Jun 25 23:37	5°♊20'21	0°11'30	opposition	3214 Jan 28 19:06	8°♈35'23	0°37'04
minimum elong	3206 Jun 25 23:37	5°♊20'21	0°11'30	min. Earth dist.	3214 Jan 29 10:02	8°♈33'46	17.78987 AU
behind sun begin	3206 Jun 25 18:50	5°♊19'40		direct	3214 Apr 13 16:37	6°♈31'58	
behind sun end	3206 Jun 26 04:24	5°♊21'02		max. Earth dist.	3214 Aug 01 07:35	10°♈48'55	19.75803 AU
max. Earth dist.	3206 Jun 25 19:37	5°♊19'47	20.28182 AU				
retrograde	3206 Oct 14 22:59	9°♊33'22		conjunction	3214 Aug 02 02:29	10°♈51'47	0°34'30
opposition	3206 Dec 29 13:17	7°♊31'34	0°14'32	minimum elong	3214 Aug 02 02:29	10°♈51'47	0°34'30
min. Earth dist.	3206 Dec 29 16:50	7°♊31'11	18.24864 AU		3214 Oct 30 09:19	15°♈	
direct	3207 Mar 14 04:56	5°♊30'41		retrograde	3214 Nov 20 05:21	15°♈11'45	
					3214 Dec 11 04:57	15°♈♈	
conjunction	3207 Jun 30 17:44	9°♊39'35	0°14'43	opposition	3215 Feb 02 12:20	13°♈09'15	0°39'37
minimum elong	3207 Jun 30 17:44	9°♊39'35	0°14'43	min. Earth dist.	3215 Feb 03 03:59	13°♈07'33	17.72672 AU
behind sun begin	3207 Jun 30 15:13	9°♊39'14		direct	3215 Apr 18 12:48	11°♈05'25	
behind sun end	3207 Jun 30 20:16	9°♊39'57			3215 Jul 30 20:06	15°♈	
max. Earth dist.	3207 Jun 30 11:35	9°♊38'42	20.21587 AU	max. Earth dist.	3215 Aug 06 08:04	15°♈23'45	19.69580 AU
retrograde	3207 Oct 19 14:47	13°♊53'31					
opposition	3208 Jan 03 01:43	11°♊51'38	0°18'05	conjunction	3215 Aug 07 03:34	15°♈26'43	0°36'41
min. Earth dist.	3208 Jan 03 07:39	11°♊51'00	18.18284 AU	minimum elong	3215 Aug 07 03:34	15°♈26'43	0°36'40
direct	3208 Mar 17 16:39	9°♊50'24		retrograde	3215 Nov 25 02:21	19°♈47'22	
				opposition	3216 Feb 07 06:28	17°♈44'45	0°41'56
conjunction	3208 Jul 04 12:51	14°♊00'52	0°17'53	min. Earth dist.	3216 Feb 07 23:45	17°♈42'53	17.66577 AU
minimum elong	3208 Jul 04 12:51	14°♊00'52	0°17'54	direct	3216 Apr 22 08:04	15°♈40'32	
max. Earth dist.	3208 Jul 04 05:22	13°♊59'46	20.15022 AU	max. Earth dist.	3216 Aug 10 07:22	19°♈59'55	19.63633 AU
retrograde	3208 Oct 23 09:00	18°♊15'44					
opposition	3209 Jan 06 14:37	16°♊13'47	0°21'34	conjunction	3216 Aug 11 04:57	20°♈03'13	0°38'37
min. Earth dist.	3209 Jan 06 21:04	16°♊13'06	18.11725 AU	minimum elong	3216 Aug 11 04:57	20°♈03'12	0°38'38
direct	3209 Mar 22 06:49	14°♊12'14		retrograde	3216 Nov 29 00:41	24°♈24'32	
				opposition	3217 Feb 11 01:11	22°♈21'47	0°43'59
conjunction	3209 Jul 09 08:54	18°♊24'16	0°20'58	min. Earth dist.	3217 Feb 11 18:59	22°♈19'51	17.60804 AU
minimum elong	3209 Jul 09 08:53	18°♊24'16	0°20'58	direct	3217 Apr 27 05:00	20°♈17'10	
max. Earth dist.	3209 Jul 08 23:25	18°♊22'52	20.08461 AU	max. Earth dist.	3217 Aug 15 09:40	24°♈37'55	19.58031 AU
retrograde	3209 Oct 28 02:19	22°♊40'04					
opposition	3210 Jan 11 04:29	20°♊38'04	0°24'57	conjunction	3217 Aug 16 07:03	24°♈41'12	0°40'20
min. Earth dist.	3210 Jan 11 13:25	20°♊37'06	18.05173 AU	minimum elong	3217 Aug 16 07:03	24°♈41'12	0°40'19
direct	3210 Mar 26 20:26	18°♊36'11		retrograde	3217 Dec 03 23:14	29°♈03'07	
				opposition	3218 Feb 15 20:36	27°♈00'17	0°45'45
conjunction	3210 Jul 14 05:52	22°♊49'49	0°23'57	min. Earth dist.	3218 Feb 16 15:21	26°♈58'14	17.55410 AU
minimum elong	3210 Jul 14 05:51	22°♊49'49	0°23'58	direct	3218 May 02 01:54	24°♈55'18	
max. Earth dist.	3210 Jul 13 18:33	22°♊48'08	20.01907 AU	max. Earth dist.	3218 Aug 20 10:14	29°♈17'01	19.52858 AU
retrograde	3210 Nov 01 21:37	27°♊06'32					
opposition	3211 Jan 15 18:58	25°♊04'27	0°28'13	conjunction	3218 Aug 21 09:30	29°♈20'36	0°41'46
min. Earth dist.	3211 Jan 16 04:37	25°♊03'25	17.98609 AU	minimum elong	3218 Aug 21 09:30	29°♈20'36	0°41'47
direct	3211 Mar 31 12:42	23°♊02'13			3218 Sep 01 01:51	0°♈	
				retrograde	3218 Dec 08 21:58	3°♈43'04	
conjunction	3211 Jul 19 03:56	27°♊17'26	0°26'50	opposition	3219 Feb 20 16:45	1°♈40'09	0°47'13
minimum elong	3211 Jul 19 03:56	27°♊17'26	0°26'50	min. Earth dist.	3219 Feb 21 11:58	1°♈38'03	17.50480 AU
max. Earth dist.	3211 Jul 18 14:44	27°♊15'28	19.95320 AU		3219 Apr 05 23:20	30°♈♈	

direct	3219 May 06 23:32	29° $\Omega$ 34'51		min. Earth dist.	3227 Mar 31 05:50	9° $\Omega$ 38'07	17.29448 AU
	3219 Jun 06 18:02	0° $\cap$		direct	3227 Jun 14 10:53	7° $\Omega$ 34'07	
conjunction	3219 Aug 26 12:37	4° $\cap$ 01'23	0°42'57	conjunction	3227 Oct 04 21:46	12° $\Omega$ 06'23	0°41'42
minimum elong	3219 Aug 26 12:37	4° $\cap$ 01'23	0°42'57	minimum elong	3227 Oct 04 21:46	12° $\Omega$ 06'23	0°41'42
max. Earth dist.	3219 Aug 25 13:59	3° $\cap$ 57'53	19.48163 AU	max. Earth dist.	3227 Oct 03 21:51	12° $\Omega$ 02'37	19.29116 AU
retrograde	3219 Dec 13 21:43	8° $\cap$ 24'19		retrograde	3228 Jan 20 23:11	16° $\Omega$ 30'40	
opposition	3220 Feb 25 13:32	6° $\cap$ 21'22	0°48'23	opposition	3228 Apr 03 09:46	14° $\Omega$ 28'10	0°45'43
min. Earth dist.	3220 Feb 26 09:03	6° $\cap$ 19'14	17.46045 AU	min. Earth dist.	3228 Apr 04 05:34	14° $\Omega$ 26'00	17.28989 AU
direct	3220 May 10 22:40	4° $\cap$ 15'50		direct	3228 Jun 18 15:59	12° $\Omega$ 21'48	
				max. Earth dist.	3228 Oct 08 02:52	16° $\Omega$ 50'33	19.28911 AU
conjunction	3220 Aug 30 15:58	8° $\cap$ 43'28	0°43'51				
minimum elong	3220 Aug 30 15:57	8° $\cap$ 43'28	0°43'51	conjunction	3228 Oct 09 01:42	16° $\Omega$ 54'09	0°40'11
max. Earth dist.	3220 Aug 29 15:49	8° $\cap$ 39'44	19.44001 AU	minimum elong	3228 Oct 09 01:42	16° $\Omega$ 54'09	0°40'12
retrograde	3220 Dec 17 20:16	13° $\cap$ 06'52		retrograde	3229 Jan 24 22:40	21° $\Omega$ 18'12	
opposition	3221 Mar 01 11:04	11° $\cap$ 03'55	0°49'14	opposition	3229 Apr 08 11:13	19° $\Omega$ 15'45	0°43'53
min. Earth dist.	3221 Mar 02 07:06	11° $\cap$ 01'43	17.42168 AU	min. Earth dist.	3229 Apr 09 07:29	19° $\Omega$ 13'33	17.29049 AU
direct	3221 May 15 21:28	8° $\cap$ 58'11		direct	3229 Jun 23 18:27	17° $\Omega$ 09'23	
				max. Earth dist.	3229 Oct 13 06:20	21° $\Omega$ 38'04	19.29248 AU
conjunction	3221 Sep 04 19:41	13° $\cap$ 26'51	0°44'27				
minimum elong	3221 Sep 04 19:41	13° $\cap$ 26'51	0°44'27	conjunction	3229 Oct 14 05:00	21° $\Omega$ 41'39	0°38'23
max. Earth dist.	3221 Sep 03 20:27	13° $\cap$ 23'14	19.40394 AU	minimum elong	3229 Oct 14 05:00	21° $\Omega$ 41'39	0°38'23
retrograde	3221 Dec 22 20:54	17° $\cap$ 50'37		retrograde	3230 Jan 30 00:06	26° $\Omega$ 05'23	
opposition	3222 Mar 06 09:13	15° $\cap$ 47'44	0°49'46	opposition	3230 Apr 13 12:38	24° $\Omega$ 02'59	0°41'43
min. Earth dist.	3222 Mar 07 05:07	15° $\cap$ 45'33	17.38822 AU	min. Earth dist.	3230 Apr 14 07:13	24° $\Omega$ 00'58	17.29651 AU
direct	3222 May 20 22:45	13° $\cap$ 41'51		direct	3230 Jun 28 23:26	21° $\Omega$ 56'37	
				max. Earth dist.	3230 Oct 18 11:16	26° $\Omega$ 25'23	19.30131 AU
conjunction	3222 Sep 09 23:47	18° $\cap$ 11'28	0°44'45				
minimum elong	3222 Sep 09 23:47	18° $\cap$ 11'28	0°44'45	conjunction	3230 Oct 19 08:00	26° $\Omega$ 28'40	0°36'20
max. Earth dist.	3222 Sep 08 23:22	18° $\cap$ 07'39	19.37311 AU	minimum elong	3230 Oct 19 08:00	26° $\Omega$ 28'40	0°36'19
retrograde	3222 Dec 27 19:43	22° $\cap$ 35'32			3230 Dec 22 12:17	0° $\cap$	
opposition	3223 Mar 11 07:56	20° $\cap$ 32'43	0°49'57	retrograde	3231 Feb 03 23:09	0° $\cap$ 51'59	
min. Earth dist.	3223 Mar 12 04:44	20° $\cap$ 30'26	17.36003 AU		3231 Mar 20 19:45	30° $\cap$	
direct	3223 May 25 23:12	18° $\cap$ 26'42		opposition	3231 Apr 18 14:16	28° $\Omega$ 49'40	0°39'17
max. Earth dist.	3223 Sep 14 04:25	22° $\cap$ 53'25	19.34736 AU	min. Earth dist.	3231 Apr 19 08:48	28° $\Omega$ 47'39	17.30825 AU
				direct	3231 Jul 04 01:59	26° $\Omega$ 43'20	
conjunction	3223 Sep 15 04:15	22° $\cap$ 57'09	0°44'46		3231 Oct 04 09:06	0° $\cap$	
minimum elong	3223 Sep 15 04:15	22° $\cap$ 57'09	0°44'46				
retrograde	3224 Jan 01 21:05	27° $\cap$ 21'26		conjunction	3231 Oct 24 10:15	1° $\cap$ 15'01	0°34'01
opposition	3224 Mar 15 07:22	25° $\cap$ 18'42	0°49'47	minimum elong	3231 Oct 24 10:15	1° $\cap$ 15'01	0°34'02
min. Earth dist.	3224 Mar 16 03:41	25° $\cap$ 16'28	17.33662 AU	max. Earth dist.	3231 Oct 23 13:51	1° $\cap$ 11'48	19.31617 AU
direct	3224 May 30 02:26	23° $\cap$ 12'36		retrograde	3232 Feb 08 23:42	5° $\cap$ 37'53	
max. Earth dist.	3224 Sep 18 08:09	27° $\cap$ 39'53	19.32626 AU	opposition	3232 Apr 22 15:54	3° $\cap$ 35'37	0°36'35
				min. Earth dist.	3232 Apr 23 08:22	3° $\cap$ 33'50	17.32622 AU
conjunction	3224 Sep 19 08:36	27° $\cap$ 43'43	0°44'27	direct	3232 Jul 08 06:36	1° $\cap$ 29'23	
minimum elong	3224 Sep 19 08:36	27° $\cap$ 43'43	0°44'27				
	3224 Oct 27 05:48	0° $\Omega$		conjunction	3232 Oct 28 11:51	6° $\cap$ 00'34	0°31'29
retrograde	3225 Jan 05 20:19	2° $\Omega$ 08'09		minimum elong	3232 Oct 28 11:51	6° $\cap$ 00'34	0°31'28
opposition	3225 Mar 20 07:27	0° $\Omega$ 05'28	0°49'17	max. Earth dist.	3232 Oct 27 18:09	5° $\cap$ 57'47	19.33730 AU
min. Earth dist.	3225 Mar 21 04:39	0° $\Omega$ 03'09	17.31798 AU	retrograde	3233 Feb 12 22:15	10° $\cap$ 22'55	
	3225 Mar 22 09:28	30° $\cap$		opposition	3233 Apr 27 17:37	8° $\cap$ 20'46	0°33'38
direct	3225 Jun 04 04:01	27° $\cap$ 59'17		min. Earth dist.	3233 Apr 28 09:20	8° $\cap$ 19'04	17.35046 AU
	3225 Aug 13 03:36	0° $\Omega$		direct	3233 Jul 13 09:35	6° $\cap$ 14'43	
conjunction	3225 Sep 24 13:08	2° $\Omega$ 30'56	0°43'51	conjunction	3233 Nov 02 12:48	10° $\cap$ 45'16	0°28'45
minimum elong	3225 Sep 24 13:08	2° $\Omega$ 30'56	0°43'51	minimum elong	3233 Nov 02 12:48	10° $\cap$ 45'16	0°28'45
max. Earth dist.	3225 Sep 23 12:59	2° $\Omega$ 27'08	19.30993 AU	max. Earth dist.	3233 Nov 01 19:37	10° $\cap$ 42'33	19.36483 AU
retrograde	3226 Jan 10 22:02	6° $\Omega$ 55'24			3234 Feb 02 01:22	15° $\cap$	
opposition	3226 Mar 25 07:44	4° $\Omega$ 52'47	0°48'26	retrograde	3234 Feb 17 21:30	15° $\cap$ 07'03	
min. Earth dist.	3226 Mar 26 04:03	4° $\Omega$ 50'34	17.30389 AU		3234 Mar 05 19:54	15° $\cap$	
direct	3226 Jun 09 08:28	2° $\Omega$ 46'32		opposition	3234 May 02 19:00	13° $\cap$ 05'02	0°30'28
				min. Earth dist.	3234 May 03 08:45	13° $\cap$ 03'34	17.38109 AU
conjunction	3226 Sep 29 17:37	7° $\Omega$ 18'34	0°42'55	direct	3234 Jul 18 14:01	10° $\cap$ 59'12	
minimum elong	3226 Sep 29 17:37	7° $\Omega$ 18'34	0°42'55		3234 Oct 30 20:46	15° $\cap$	
max. Earth dist.	3226 Sep 28 17:33	7° $\Omega$ 14'47	19.29813 AU				
retrograde	3227 Jan 15 21:34	11° $\Omega$ 42'59		conjunction	3234 Nov 07 13:16	15° $\cap$ 29'02	0°25'49
opposition	3227 Mar 30 08:41	9° $\Omega$ 40'26	0°47'15	minimum elong	3234 Nov 07 13:16	15° $\cap$ 29'02	0°25'49

max. Earth dist.	3234 Nov 06 22:53	15° <del>ℓ</del> 26'47	19.39851 AU	max. Earth dist.	3241 Dec 09 14:29	17° <del>♊</del> 59'46	19.75210 AU
retrograde	3235 Feb 22 19:14	19° <del>ℓ</del> 50'11		retrograde	3242 Mar 26 20:05	22° <del>♊</del> 15'46	
opposition	3235 May 07 20:31	17° <del>ℓ</del> 48'23	0°27'06	opposition	3242 Jun 09 23:24	20° <del>♊</del> 15'14	0°00'24
min. Earth dist.	3235 May 08 09:06	17° <del>ℓ</del> 47'02	17.41749 AU	min. Earth dist.	3242 Jun 10 01:51	20° <del>♊</del> 14'58	17.78198 AU
direct	3235 Jul 23 17:28	15° <del>ℓ</del> 42'50		desc. node	3242 Jul 17 09:48	18° <del>♊</del> 50'09	
				direct	3242 Aug 26 03:02	18° <del>♊</del> 11'54	
conjunction	3235 Nov 12 12:43	20° <del>ℓ</del> 11'48	0°22'44				
minimum elong	3235 Nov 12 12:43	20° <del>ℓ</del> 11'48	0°22'44	conjunction	3242 Dec 14 11:35	22° <del>♊</del> 32'16	0°-1'-28
max. Earth dist.	3235 Nov 11 23:03	20° <del>ℓ</del> 09'40	19.43772 AU	minimum elong	3242 Dec 14 11:35	22° <del>♊</del> 32'16	0°01'29
retrograde	3236 Feb 27 17:32	24° <del>ℓ</del> 32'19		behind sun begin	3242 Dec 14 05:00	22° <del>♊</del> 31'17	
opposition	3236 May 11 21:53	22° <del>ℓ</del> 30'42	0°23'35	behind sun end	3242 Dec 14 18:10	22° <del>♊</del> 33'16	
min. Earth dist.	3236 May 12 08:47	22° <del>ℓ</del> 29'32	17.45926 AU	max. Earth dist.	3242 Dec 14 09:58	22° <del>♊</del> 32'05	19.81261 AU
direct	3236 Jul 27 20:48	20° <del>ℓ</del> 25'27		retrograde	3243 Mar 31 15:39	26° <del>♊</del> 46'51	
				opposition	3243 Jun 14 21:56	24° <del>♊</del> 46'25	0°-3'-31
conjunction	3236 Nov 16 11:40	24° <del>ℓ</del> 53'29	0°19'31	min. Earth dist.	3243 Jun 14 21:49	24° <del>♊</del> 46'26	17.84318 AU
minimum elong	3236 Nov 16 11:40	24° <del>ℓ</del> 53'29	0°19'32	direct	3243 Aug 31 03:47	22° <del>♊</del> 43'25	
max. Earth dist.	3236 Nov 16 00:43	24° <del>ℓ</del> 51'47	19.48188 AU				
retrograde	3237 Mar 03 14:56	29° <del>ℓ</del> 13'16		conjunction	3243 Dec 19 04:13	27° <del>♊</del> 02'16	0°-5'-1
opposition	3237 May 16 22:56	27° <del>ℓ</del> 11'53	0°19'55	minimum elong	3243 Dec 19 04:12	27° <del>♊</del> 02'15	0°05'01
min. Earth dist.	3237 May 17 08:21	27° <del>ℓ</del> 10'52	17.50548 AU	behind sun begin	3243 Dec 18 21:48	27° <del>♊</del> 01'18	
direct	3237 Aug 01 23:50	25° <del>ℓ</del> 06'57		behind sun end	3243 Dec 19 10:36	27° <del>♊</del> 03'13	
				max. Earth dist.	3243 Dec 19 04:36	27° <del>♊</del> 02'18	19.87463 AU
conjunction	3237 Nov 21 09:44	29° <del>ℓ</del> 33'55	0°16'11		3244 Feb 10 04:12	0° <del>♋</del>	
minimum elong	3237 Nov 21 09:44	29° <del>ℓ</del> 33'55	0°16'10	retrograde	3244 Apr 04 08:04	1° <del>♋</del> 15'54	
max. Earth dist.	3237 Nov 20 23:34	29° <del>ℓ</del> 32'20	19.53013 AU		3244 May 31 13:35	30° <del>♋</del> <del>♊</del>	
	3237 Nov 28 08:07	0° <del>♋</del>		opposition	3244 Jun 18 19:57	29° <del>♋</del> 15'33	0°-7'-24
retrograde	3238 Mar 08 12:04	3° <del>♋</del> 52'57		min. Earth dist.	3244 Jun 18 19:04	29° <del>♋</del> 15'38	17.90613 AU
opposition	3238 May 21 23:50	1° <del>♋</del> 51'45	0°16'08	direct	3244 Sep 04 00:38	27° <del>♋</del> 12'51	
min. Earth dist.	3238 May 22 08:01	1° <del>♋</del> 50'53	17.55558 AU		3244 Nov 27 21:11	0° <del>♋</del>	
	3238 Jul 15 13:22	30° <del>♋</del> <del>ℓ</del>					
direct	3238 Aug 07 01:06	29° <del>ℓ</del> 47'08		conjunction	3244 Dec 22 19:54	1° <del>♋</del> 30'09	0°-8'-27
	3238 Aug 29 05:28	0° <del>♋</del>		minimum elong	3244 Dec 22 19:55	1° <del>♋</del> 30'09	0°08'28
				behind sun begin	3244 Dec 22 14:08	1° <del>♋</del> 29'17	
conjunction	3238 Nov 26 07:06	4° <del>♋</del> 12'58	0°12'45	behind sun end	3244 Dec 23 01:41	1° <del>♋</del> 31'01	
minimum elong	3238 Nov 26 07:06	4° <del>♋</del> 12'58	0°12'46	max. Earth dist.	3244 Dec 22 21:59	1° <del>♋</del> 30'27	19.93850 AU
behind sun begin	3238 Nov 26 02:54	4° <del>♋</del> 12'19		retrograde	3245 Apr 09 01:49	5° <del>♋</del> 42'50	
behind sun end	3238 Nov 26 11:17	4° <del>♋</del> 13'36		opposition	3245 Jun 23 16:55	3° <del>♋</del> 42'35	0°-11'-13
max. Earth dist.	3238 Nov 25 23:17	4° <del>♋</del> 11'45	19.58188 AU	min. Earth dist.	3245 Jun 23 13:12	3° <del>♋</del> 42'58	17.97087 AU
retrograde	3239 Mar 13 09:30	8° <del>♋</del> 31'10		direct	3245 Sep 08 23:37	1° <del>♋</del> 40'13	
opposition	3239 May 27 00:23	6° <del>♋</del> 30'10	0°12'15				
min. Earth dist.	3239 May 27 06:41	6° <del>♋</del> 29'30	17.60869 AU	conjunction	3245 Dec 27 10:45	5° <del>♋</del> 56'00	0°-11'-49
direct	3239 Aug 12 03:38	4° <del>♋</del> 25'53		minimum elong	3245 Dec 27 10:45	5° <del>♋</del> 56'00	0°11'50
				behind sun begin	3245 Dec 27 06:06	5° <del>♋</del> 55'18	
conjunction	3239 Dec 01 03:34	8° <del>♋</del> 50'27	0°09'16	behind sun end	3245 Dec 27 15:24	5° <del>♋</del> 56'41	
minimum elong	3239 Dec 01 03:34	8° <del>♋</del> 50'27	0°09'16	max. Earth dist.	3245 Dec 27 15:10	5° <del>♋</del> 56'39	20.00411 AU
behind sun begin	3239 Nov 30 21:58	8° <del>♋</del> 49'36		retrograde	3246 Apr 13 17:06	10° <del>♋</del> 07'45	
behind sun end	3239 Dec 01 09:09	8° <del>♋</del> 51'18		opposition	3246 Jun 28 13:32	8° <del>♋</del> 07'37	0°-14'-55
max. Earth dist.	3239 Nov 30 20:50	8° <del>♋</del> 49'25	19.63640 AU	min. Earth dist.	3246 Jun 28 08:56	8° <del>♋</del> 08'05	18.03747 AU
retrograde	3240 Mar 17 05:16	13° <del>♋</del> 07'48		direct	3246 Sep 13 18:48	6° <del>♋</del> 05'37	
opposition	3240 May 31 00:39	11° <del>♋</del> 06'59	0°08'20				
min. Earth dist.	3240 May 31 05:59	11° <del>♋</del> 06'25	17.66454 AU	conjunction	3247 Jan 01 00:31	10° <del>♋</del> 19'51	0°-15'-6
direct	3240 Aug 16 02:58	9° <del>♋</del> 03'02		minimum elong	3247 Jan 01 00:31	10° <del>♋</del> 19'51	0°15'07
				behind sun begin	3246 Dec 31 22:02	10° <del>♋</del> 19'29	
conjunction	3240 Dec 04 23:06	13° <del>♋</del> 26'15	0°05'44	behind sun end	3247 Jan 01 02:59	10° <del>♋</del> 20'13	
minimum elong	3240 Dec 04 23:06	13° <del>♋</del> 26'16	0°05'44	max. Earth dist.	3247 Jan 01 06:25	10° <del>♋</del> 20'44	20.07161 AU
behind sun begin	3240 Dec 04 16:47	13° <del>♋</del> 25'18		retrograde	3247 Apr 18 09:38	14° <del>♋</del> 30'42	
behind sun end	3240 Dec 05 05:26	13° <del>♋</del> 27'13		opposition	3247 Jul 03 09:19	12° <del>♋</del> 30'44	0°-18'-30
max. Earth dist.	3240 Dec 04 18:23	13° <del>♋</del> 25'33	19.69337 AU	min. Earth dist.	3247 Jul 03 01:42	12° <del>♋</del> 31'31	18.10575 AU
retrograde	3241 Mar 22 02:16	17° <del>♋</del> 42'43		direct	3247 Sep 18 15:40	10° <del>♋</del> 29'07	
opposition	3241 Jun 05 00:17	15° <del>♋</del> 42'02	0°04'22				
min. Earth dist.	3241 Jun 05 03:25	15° <del>♋</del> 41'43	17.72235 AU	conjunction	3248 Jan 05 13:35	14° <del>♋</del> 41'51	0°-18'-16
direct	3241 Aug 21 04:50	13° <del>♋</del> 38'25		minimum elong	3248 Jan 05 13:35	14° <del>♋</del> 41'51	0°18'17
				max. Earth dist.	3248 Jan 05 22:02	14° <del>♋</del> 43'08	20.14053 AU
conjunction	3241 Dec 09 17:49	18° <del>♋</del> 00'14	0°02'10	retrograde	3248 Apr 21 23:53	18° <del>♋</del> 51'51	
minimum elong	3241 Dec 09 17:49	18° <del>♋</del> 00'14	0°02'11	opposition	3248 Jul 07 04:31	16° <del>♋</del> 52'02	0°-21'-58
behind sun begin	3241 Dec 09 11:13	17° <del>♋</del> 59'15		min. Earth dist.	3248 Jul 06 20:07	16° <del>♋</del> 52'54	18.17528 AU
behind sun end	3241 Dec 10 00:25	18° <del>♋</del> 01'14		direct	3248 Sep 22 09:24	14° <del>♋</del> 50'51	



conjunction	3249 Jan 09 01:44	19° $\overline{3}$ 02'06	0°-21'-19	min. Earth dist.	3256 Aug 10 19:50	20° $\approx$ 45'55	18.69187 AU
minimum elong	3249 Jan 09 01:44	19° $\overline{3}$ 02'06	0°21'20	direct	3256 Oct 27 07:18	18° $\approx$ 45'50	
max. Earth dist.	3249 Jan 09 11:14	19° $\overline{3}$ 03'32	20.21048 AU				
retrograde	3249 Apr 26 15:06	23° $\overline{3}$ 11'16		conjunction	3257 Feb 11 03:45	22° $\approx$ 46'16	0°-39'-47
opposition	3249 Jul 11 22:52	21° $\overline{3}$ 11'38	0°-25'-16	minimum elong	3257 Feb 11 03:45	22° $\approx$ 46'16	0°39'48
min. Earth dist.	3249 Jul 11 11:48	21° $\overline{3}$ 12'46	18.24537 AU	max. Earth dist.	3257 Feb 11 22:11	22° $\approx$ 48'59	20.71788 AU
direct	3249 Sep 27 03:51	19° $\overline{3}$ 10'53		retrograde	3257 May 30 15:09	26° $\approx$ 49'46	
				min. Earth dist.	3257 Aug 15 07:40	24° $\approx$ 52'51	18.74340 AU
conjunction	3250 Jan 13 13:13	23° $\overline{3}$ 20'40	0°-24'-14	opposition	3257 Aug 16 02:44	24° $\approx$ 50'57	0°-44'-50
minimum elong	3250 Jan 13 13:13	23° $\overline{3}$ 20'40	0°24'16	direct	3257 Oct 31 18:27	22° $\approx$ 52'52	
max. Earth dist.	3250 Jan 14 01:09	23° $\overline{3}$ 22'28	20.28046 AU				
retrograde	3250 May 01 04:13	27° $\overline{3}$ 29'02		conjunction	3258 Feb 15 10:20	26° $\approx$ 52'09	0°-41'-12
opposition	3250 Jul 16 16:42	25° $\overline{3}$ 29'35	0°-28'-24	minimum elong	3258 Feb 15 10:20	26° $\approx$ 52'09	0°41'13
min. Earth dist.	3250 Jul 16 05:05	25° $\overline{3}$ 30'46	18.31521 AU	max. Earth dist.	3258 Feb 16 06:45	26° $\approx$ 55'09	20.76768 AU
direct	3250 Oct 01 20:07	23° $\overline{3}$ 29'17			3258 Apr 17 09:50	0° $\overline{H}$	
				retrograde	3258 Jun 04 00:08	0° $\overline{H}$ 55'04	
conjunction	3251 Jan 17 23:58	27° $\overline{3}$ 37'38	0°-26'-59		3258 Jul 23 14:57	30° $\overline{R}$ $\approx$	
minimum elong	3251 Jan 17 23:57	27° $\overline{3}$ 37'38	0°27'00	opposition	3258 Aug 20 15:09	28° $\approx$ 56'14	0°-46'-16
max. Earth dist.	3251 Jan 18 12:32	27° $\overline{3}$ 39'31	20.35000 AU	min. Earth dist.	3258 Aug 19 19:38	28° $\approx$ 58'12	18.79170 AU
	3251 Feb 28 22:58	0° $\approx$		direct	3258 Nov 05 05:35	26° $\approx$ 58'23	
retrograde	3251 May 05 18:13	1° $\approx$ 45'13			3259 Feb 03 10:07	0° $\overline{H}$	
	3251 Jul 15 15:08	30° $\overline{R}$ $\overline{3}$					
opposition	3251 Jul 21 09:53	29° $\overline{3}$ 45'57	0°-31'-22	conjunction	3259 Feb 19 16:23	0° $\overline{H}$ 56'34	0°-42'-23
min. Earth dist.	3251 Jul 20 19:56	29° $\overline{3}$ 47'22	18.38425 AU	minimum elong	3259 Feb 19 16:23	0° $\overline{H}$ 56'34	0°42'25
direct	3251 Oct 06 12:30	27° $\overline{3}$ 46'03		max. Earth dist.	3259 Feb 20 12:38	0° $\overline{H}$ 59'32	20.81459 AU
	3251 Dec 20 19:40	0° $\approx$		retrograde	3259 Jun 08 10:15	4° $\overline{H}$ 59'00	
				min. Earth dist.	3259 Aug 24 06:14	3° $\overline{H}$ 02'12	18.83734 AU
conjunction	3252 Jan 22 10:04	1° $\approx$ 53'00	0°-29'-35	opposition	3259 Aug 25 02:53	3° $\overline{H}$ 00'08	0°-47'-27
minimum elong	3252 Jan 22 10:03	1° $\approx$ 53'00	0°29'37	direct	3259 Nov 09 14:36	1° $\overline{H}$ 02'29	
max. Earth dist.	3252 Jan 23 00:53	1° $\approx$ 55'13	20.41819 AU				
retrograde	3252 May 09 06:15	5° $\approx$ 59'51		conjunction	3260 Feb 23 22:09	4° $\overline{H}$ 59'41	0°-43'-22
opposition	3252 Jul 25 02:29	4° $\approx$ 00'44	0°-34'-9	minimum elong	3260 Feb 23 22:09	4° $\overline{H}$ 59'41	0°43'23
min. Earth dist.	3252 Jul 24 12:11	4° $\approx$ 02'11	18.45156 AU	max. Earth dist.	3260 Feb 24 20:19	5° $\overline{H}$ 02'55	20.85872 AU
direct	3252 Oct 10 02:57	2° $\approx$ 01'15		retrograde	3260 Jun 11 18:33	9° $\overline{H}$ 01'39	
				opposition	3260 Aug 28 13:59	7° $\overline{H}$ 02'48	0°-48'-24
conjunction	3253 Jan 25 19:33	6° $\approx$ 06'49	0°-32'-1	min. Earth dist.	3260 Aug 27 16:51	7° $\overline{H}$ 04'55	18.88006 AU
minimum elong	3253 Jan 25 19:33	6° $\approx$ 06'49	0°32'02	direct	3260 Nov 13 00:36	5° $\overline{H}$ 05'22	
max. Earth dist.	3253 Jan 26 10:32	6° $\approx$ 09'02	20.48440 AU				
retrograde	3253 May 13 19:22	10° $\approx$ 12'56		conjunction	3261 Feb 27 03:30	9° $\overline{H}$ 01'40	0°-44'-7
opposition	3253 Jul 29 18:09	8° $\approx$ 13'57	0°-36'-44	minimum elong	3261 Feb 27 03:30	9° $\overline{H}$ 01'40	0°44'08
min. Earth dist.	3253 Jul 29 02:06	8° $\approx$ 15'34	18.51655 AU	max. Earth dist.	3261 Feb 28 01:15	9° $\overline{H}$ 04'50	20.90003 AU
direct	3253 Oct 14 17:31	6° $\approx$ 14'49		retrograde	3261 Jun 16 04:14	13° $\overline{H}$ 03'17	
				min. Earth dist.	3261 Sep 01 02:32	11° $\overline{H}$ 06'38	18.91997 AU
conjunction	3254 Jan 30 04:36	10° $\approx$ 19'04	0°-34'-15	opposition	3261 Sep 02 00:26	11° $\overline{H}$ 04'26	0°-49'-7
minimum elong	3254 Jan 30 04:36	10° $\approx$ 19'04	0°34'16	direct	3261 Nov 17 08:08	9° $\overline{H}$ 07'13	
max. Earth dist.	3254 Jan 30 21:30	10° $\approx$ 21'34	20.54783 AU				
retrograde	3254 May 18 06:09	14° $\approx$ 24'29		conjunction	3262 Mar 03 08:45	13° $\overline{H}$ 02'44	0°-44'-40
opposition	3254 Aug 03 09:26	12° $\approx$ 25'37	0°-39'-6	minimum elong	3262 Mar 03 08:44	13° $\overline{H}$ 02'44	0°44'41
min. Earth dist.	3254 Aug 02 17:10	12° $\approx$ 27'15	18.57844 AU	max. Earth dist.	3262 Mar 04 08:10	13° $\overline{H}$ 06'07	20.93831 AU
direct	3254 Oct 19 06:23	10° $\approx$ 26'49		retrograde	3262 Jun 20 12:06	17° $\overline{H}$ 04'02	
				opposition	3262 Sep 06 10:32	15° $\overline{H}$ 05'14	0°-49'-34
conjunction	3255 Feb 03 12:47	14° $\approx$ 29'44	0°-36'-18	min. Earth dist.	3262 Sep 05 12:14	15° $\overline{H}$ 07'27	18.95660 AU
minimum elong	3255 Feb 03 12:47	14° $\approx$ 29'44	0°36'19	direct	3262 Nov 21 16:42	13° $\overline{H}$ 08'14	
max. Earth dist.	3255 Feb 04 05:36	14° $\approx$ 32'13	20.60806 AU				
	3255 Feb 12 01:19	15° $\approx$		conjunction	3263 Mar 07 13:32	17° $\overline{H}$ 03'01	0°-44'-59
retrograde	3255 May 22 18:26	18° $\approx$ 34'30		minimum elong	3263 Mar 07 13:32	17° $\overline{H}$ 03'01	0°44'59
opposition	3255 Aug 07 23:59	16° $\approx$ 35'40	0°-41'-14	max. Earth dist.	3263 Mar 08 12:22	17° $\overline{H}$ 06'19	20.97329 AU
min. Earth dist.	3255 Aug 07 06:16	16° $\approx$ 37'27	18.63699 AU	retrograde	3263 Jun 24 21:45	21° $\overline{H}$ 04'07	
	3255 Sep 23 01:59	15° $\overline{R}$ $\approx$		opposition	3263 Sep 10 20:14	19° $\overline{H}$ 05'20	0°-49'-48
direct	3255 Oct 23 19:32	14° $\approx$ 37'09		min. Earth dist.	3263 Sep 09 21:35	19° $\overline{H}$ 07'36	18.98981 AU
	3255 Nov 22 19:27	15° $\approx$		direct	3263 Nov 25 23:24	17° $\overline{H}$ 08'33	
conjunction	3256 Feb 07 20:39	18° $\approx$ 38'49	0°-38'-9	conjunction	3264 Mar 10 18:32	21° $\overline{H}$ 02'44	0°-45'-5
minimum elong	3256 Feb 07 20:39	18° $\approx$ 38'49	0°38'09	minimum elong	3264 Mar 10 18:32	21° $\overline{H}$ 02'44	0°45'06
max. Earth dist.	3256 Feb 08 15:19	18° $\approx$ 41'34	20.66471 AU	max. Earth dist.	3264 Mar 11 18:44	21° $\overline{H}$ 06'13	21.00448 AU
retrograde	3256 May 26 04:15	22° $\approx$ 42'55		retrograde	3264 Jun 28 05:24	25° $\overline{H}$ 03'38	
opposition	3256 Aug 11 13:42	20° $\approx$ 44'07	0°-43'-9	min. Earth dist.	3264 Sep 13 06:35	23° $\overline{H}$ 07'11	19.01891 AU

opposition	3264 Sep 14 05:18	23° <del>✕</del> 04'54	0°-49'-47	min. Earth dist.	3272 Oct 16 01:05	24° <del>Υ</del> 53'47	19.06623 AU
direct	3264 Nov 29 06:32	21° <del>✕</del> 08'20		direct	3272 Dec 31 06:09	22° <del>Υ</del> 55'30	
conjunction	3265 Mar 14 23:19	25° <del>✕</del> 01'59	0°-44'-58	conjunction	3273 Apr 15 17:04	26° <del>Υ</del> 47'48	0°-36'-30
minimum elong	3265 Mar 14 23:19	25° <del>✕</del> 01'59	0°44'59	minimum elong	3273 Apr 15 17:05	26° <del>Υ</del> 47'48	0°36'31
max. Earth dist.	3265 Mar 15 22:28	25° <del>✕</del> 05'19	21.03144 AU	max. Earth dist.	3273 Apr 16 12:24	26° <del>Υ</del> 50'33	21.05867 AU
retrograde	3265 Jul 02 14:43	29° <del>✕</del> 02'48			3273 Jun 19 11:44	0° <del>8</del>	
opposition	3265 Sep 18 14:12	27° <del>✕</del> 04'05	0°-49'-31	retrograde	3273 Aug 04 05:54	0° <del>8</del> 49'24	
min. Earth dist.	3265 Sep 17 15:40	27° <del>✕</del> 06'20	19.04361 AU		3273 Sep 20 03:12	30° <del>R</del> <del>Υ</del>	
direct	3265 Dec 03 12:39	25° <del>✕</del> 07'41		min. Earth dist.	3273 Oct 20 08:59	28° <del>Υ</del> 51'43	19.05080 AU
				opposition	3273 Oct 21 02:51	28° <del>Υ</del> 49'55	0°-39'-15
conjunction	3266 Mar 19 04:11	29° <del>✕</del> 00'54	0°-44'-38	direct	3274 Jan 04 10:14	26° <del>Υ</del> 53'26	
minimum elong	3266 Mar 19 04:11	29° <del>✕</del> 00'54	0°44'40		3274 Apr 06 11:15	0° <del>8</del>	
max. Earth dist.	3266 Mar 20 04:22	29° <del>✕</del> 04'22	21.05360 AU				
	3266 Apr 05 11:20	0° <del>Υ</del>		conjunction	3274 Apr 19 23:05	0° <del>8</del> 45'58	0°-34'-34
retrograde	3266 Jul 06 22:32	3° <del>Υ</del> 01'40		minimum elong	3274 Apr 19 23:05	0° <del>8</del> 45'58	0°34'35
opposition	3266 Sep 22 22:46	1° <del>Υ</del> 02'57	0°-49'-2	max. Earth dist.	3274 Apr 20 18:58	0° <del>8</del> 48'48	21.04140 AU
min. Earth dist.	3266 Sep 22 00:23	1° <del>Υ</del> 05'11	19.06315 AU	retrograde	3274 Aug 08 13:45	4° <del>8</del> 47'54	
	3266 Oct 20 16:50	30° <del>R</del> <del>✕</del>		opposition	3274 Oct 25 09:36	2° <del>8</del> 48'18	0°-37'-2
direct	3266 Dec 07 19:09	29° <del>✕</del> 06'42		min. Earth dist.	3274 Oct 24 15:51	2° <del>8</del> 50'06	19.03167 AU
	3267 Jan 23 02:27	0° <del>Υ</del>		direct	3275 Jan 08 16:14	0° <del>8</del> 51'43	
conjunction	3267 Mar 23 09:06	2° <del>Υ</del> 59'33	0°-44'-5	conjunction	3275 Apr 24 05:30	4° <del>8</del> 44'34	0°-32'-29
minimum elong	3267 Mar 23 09:05	2° <del>Υ</del> 59'33	0°44'06	minimum elong	3275 Apr 24 05:30	4° <del>8</del> 44'34	0°32'30
max. Earth dist.	3267 Mar 24 07:50	3° <del>Υ</del> 02'49	21.07051 AU	max. Earth dist.	3275 Apr 24 23:31	4° <del>8</del> 47'08	21.02061 AU
retrograde	3267 Jul 11 07:16	7° <del>Υ</del> 00'19		retrograde	3275 Aug 12 22:25	8° <del>8</del> 46'55	
min. Earth dist.	3267 Sep 26 09:20	5° <del>Υ</del> 03'45	19.07733 AU	opposition	3275 Oct 29 16:20	6° <del>8</del> 47'12	0°-34'-38
opposition	3267 Sep 27 07:02	5° <del>Υ</del> 01'35	0°-48'-18	min. Earth dist.	3275 Oct 28 23:52	6° <del>8</del> 48'52	19.00917 AU
direct	3267 Dec 12 01:01	3° <del>Υ</del> 05'24		direct	3276 Jan 12 20:14	4° <del>8</del> 50'29	
conjunction	3268 Mar 26 14:17	6° <del>Υ</del> 57'59	0°-43'-20	conjunction	3276 Apr 27 12:33	8° <del>8</del> 43'46	0°-30'-14
minimum elong	3268 Mar 26 14:17	6° <del>Υ</del> 57'59	0°43'21	minimum elong	3276 Apr 27 12:33	8° <del>8</del> 43'46	0°30'15
max. Earth dist.	3268 Mar 27 13:34	7° <del>Υ</del> 01'19	21.08172 AU	max. Earth dist.	3276 Apr 28 06:50	8° <del>8</del> 46'23	20.99634 AU
retrograde	3268 Jul 14 15:27	10° <del>Υ</del> 58'46		retrograde	3276 Aug 16 06:52	12° <del>8</del> 46'33	
opposition	3268 Sep 30 14:59	8° <del>Υ</del> 59'59	0°-47'-21	opposition	3276 Nov 01 23:05	10° <del>8</del> 46'46	0°-32'-4
min. Earth dist.	3268 Sep 29 17:39	9° <del>Υ</del> 02'07	19.08553 AU	min. Earth dist.	3276 Nov 01 06:57	10° <del>8</del> 48'24	18.98302 AU
direct	3268 Dec 15 07:24	7° <del>Υ</del> 03'51		direct	3277 Jan 16 02:00	8° <del>8</del> 49'57	
conjunction	3269 Mar 30 19:19	10° <del>Υ</del> 56'12	0°-42'-22	conjunction	3277 May 01 19:49	12° <del>8</del> 43'44	0°-27'-50
minimum elong	3269 Mar 30 19:19	10° <del>Υ</del> 56'12	0°42'23	minimum elong	3277 May 01 19:50	12° <del>8</del> 43'44	0°27'51
max. Earth dist.	3269 Mar 31 16:53	10° <del>Υ</del> 59'17	21.08709 AU	max. Earth dist.	3277 May 02 12:03	12° <del>8</del> 46'03	20.96847 AU
retrograde	3269 Jul 18 23:03	14° <del>Υ</del> 57'03			3277 Jun 12 21:54	15° <del>8</del>	
opposition	3269 Oct 04 22:39	12° <del>Υ</del> 58'09	0°-46'-9	retrograde	3277 Aug 20 16:10	16° <del>8</del> 47'04	
min. Earth dist.	3269 Oct 04 02:16	13° <del>Υ</del> 00'12	19.08809 AU		3277 Oct 31 23:44	15° <del>R</del> <del>8</del>	
direct	3269 Dec 19 12:51	11° <del>Υ</del> 02'00		opposition	3277 Nov 06 06:06	14° <del>8</del> 47'10	0°-29'-20
				min. Earth dist.	3277 Nov 05 15:33	14° <del>8</del> 48'39	18.95330 AU
conjunction	3270 Apr 04 00:36	14° <del>Υ</del> 54'13	0°-41'-11	direct	3278 Jan 20 06:19	12° <del>8</del> 50'15	
minimum elong	3270 Apr 04 00:36	14° <del>Υ</del> 54'13	0°41'12		3278 Apr 04 16:05	15° <del>8</del>	
max. Earth dist.	3270 Apr 04 22:44	14° <del>Υ</del> 57'23	21.08695 AU				
retrograde	3270 Jul 23 07:18	18° <del>Υ</del> 55'10		conjunction	3278 May 06 03:59	16° <del>8</del> 44'39	0°-25'-17
min. Earth dist.	3270 Oct 08 09:56	16° <del>Υ</del> 58'09	19.08531 AU	minimum elong	3278 May 06 03:59	16° <del>8</del> 44'39	0°25'19
opposition	3270 Oct 09 06:03	16° <del>Υ</del> 56'08	0°-44'-45	max. Earth dist.	3278 May 06 20:14	16° <del>8</del> 46'58	20.93689 AU
direct	3270 Dec 23 19:14	14° <del>Υ</del> 59'56		retrograde	3278 Aug 25 01:57	20° <del>8</del> 48'32	
				opposition	3278 Nov 10 13:09	18° <del>8</del> 48'34	0°-26'-27
conjunction	3271 Apr 08 05:46	18° <del>Υ</del> 52'04	0°-39'-49	min. Earth dist.	3278 Nov 09 23:12	18° <del>8</del> 50'00	18.91965 AU
minimum elong	3271 Apr 08 05:46	18° <del>Υ</del> 52'04	0°39'50	direct	3279 Jan 24 12:31	16° <del>8</del> 51'31	
max. Earth dist.	3271 Apr 09 02:17	18° <del>Υ</del> 55'00	21.08185 AU				
retrograde	3271 Jul 27 14:22	22° <del>Υ</del> 53'12		conjunction	3279 May 10 12:39	20° <del>8</del> 46'37	0°-22'-37
opposition	3271 Oct 13 13:15	20° <del>Υ</del> 54'00	0°-43'-7	minimum elong	3279 May 10 12:39	20° <del>8</del> 46'37	0°22'37
min. Earth dist.	3271 Oct 12 18:08	20° <del>Υ</del> 55'55	19.07793 AU	max. Earth dist.	3279 May 11 02:24	20° <del>8</del> 48'35	20.90123 AU
direct	3271 Dec 27 23:54	18° <del>Υ</del> 57'43		retrograde	3279 Aug 29 12:03	24° <del>8</del> 51'08	
				opposition	3279 Nov 14 20:34	22° <del>8</del> 51'05	0°-23'-25
conjunction	3272 Apr 11 11:24	22° <del>Υ</del> 49'53	0°-38'-15	min. Earth dist.	3279 Nov 14 08:43	22° <del>8</del> 52'17	18.88181 AU
minimum elong	3272 Apr 11 11:24	22° <del>Υ</del> 49'53	0°38'15	direct	3280 Jan 28 17:26	20° <del>8</del> 53'50	
max. Earth dist.	3272 Apr 12 08:27	22° <del>Υ</del> 52'53	21.07225 AU				
retrograde	3272 Jul 30 22:15	26° <del>Υ</del> 51'12		conjunction	3280 May 13 22:16	24° <del>8</del> 49'45	0°-19'-48
opposition	3272 Oct 16 19:59	24° <del>Υ</del> 51'52	0°-41'-17	minimum elong	3280 May 13 22:17	24° <del>8</del> 49'45	0°19'49

max. Earth dist.	3280 May 14 11:31	24°♄51'38	20.86108 AU	conjunction	3287 Jun 13 12:22	23°♄46'31	0°02'18
retrograde	3280 Sep 01 23:01	28°♄54'53		minimum elong	3287 Jun 13 12:22	23°♄46'31	0°02'18
opposition	3280 Nov 18 04:01	26°♄54'44	0°-20'-15	behind sun begin	3287 Jun 13 05:38	23°♄45'33	
min. Earth dist.	3280 Nov 17 17:04	26°♄55'52	18.83924 AU	behind sun end	3287 Jun 13 19:06	23°♄47'28	
direct	3281 Feb 01 00:37	24°♄57'17		max. Earth dist.	3287 Jun 13 12:37	23°♄46'32	20.47126 AU
				retrograde	3287 Oct 02 13:41	27°♄56'59	
conjunction	3281 May 18 08:23	28°♄54'03	0°-16'-53	opposition	3287 Dec 17 17:56	25°♄55'35	0°04'20
minimum elong	3281 May 18 08:23	28°♄54'03	0°16'54	min. Earth dist.	3287 Dec 17 18:10	25°♄55'33	18.43906 AU
max. Earth dist.	3281 May 18 18:44	28°♄55'32	20.81623 AU	direct	3288 Mar 01 08:36	23°♄55'45	
	3281 Jun 06 16:15	0°♄					
retrograde	3281 Sep 06 09:40	2°♄59'53		conjunction	3288 Jun 17 03:50	28°♄00'26	0°05'36
opposition	3281 Nov 22 12:01	0°♄59'35	0°-16'-58	minimum elong	3288 Jun 17 03:49	28°♄00'26	0°05'36
min. Earth dist.	3281 Nov 22 03:21	1°♄00'28	18.79207 AU	behind sun begin	3288 Jun 16 21:21	27°♄59'31	
	3281 Dec 17 18:53	30°♄		behind sun end	3288 Jun 17 10:17	28°♄01'22	
direct	3282 Feb 05 06:34	29°♄01'52		max. Earth dist.	3288 Jun 17 03:25	28°♄00'23	20.40703 AU
	3282 Mar 25 07:59	0°♄			3288 Jul 22 12:41	0°♄	
				retrograde	3288 Oct 06 05:45	2°♄11'47	
conjunction	3282 May 22 19:15	2°♄59'33	0°-13'-52	opposition	3288 Dec 21 04:20	0°♄10'14	0°07'59
minimum elong	3282 May 22 19:15	2°♄59'33	0°13'53	min. Earth dist.	3288 Dec 21 04:55	0°♄10'10	18.37449 AU
behind sun begin	3282 May 22 15:53	2°♄59'05			3288 Dec 25 05:25	30°♄	
behind sun end	3282 May 22 22:37	3°♄00'01		direct	3289 Mar 05 20:00	28°♄10'03	
max. Earth dist.	3282 May 23 04:56	3°♄00'56	20.76684 AU		3289 May 12 01:41	0°♄	
retrograde	3282 Sep 10 21:36	7°♄06'05					
opposition	3282 Nov 26 20:09	5°♄05'36	0°-13'-35	conjunction	3289 Jun 21 20:01	2°♄16'09	0°08'53
min. Earth dist.	3282 Nov 26 12:18	5°♄06'25	18.74040 AU	minimum elong	3289 Jun 21 20:01	2°♄16'09	0°08'53
direct	3283 Feb 09 14:40	3°♄07'35		behind sun begin	3289 Jun 21 14:15	2°♄15'19	
				behind sun end	3289 Jun 22 01:47	2°♄16'58	
conjunction	3283 May 27 06:49	7°♄06'16	0°-10'-46	max. Earth dist.	3289 Jun 21 17:14	2°♄15'45	20.34228 AU
minimum elong	3283 May 27 06:49	7°♄06'16	0°10'48	retrograde	3289 Oct 10 19:57	6°♄28'23	
behind sun begin	3283 May 27 01:44	7°♄05'33		opposition	3289 Dec 25 15:33	4°♄26'44	0°11'38
behind sun end	3283 May 27 11:54	7°♄06'59		min. Earth dist.	3289 Dec 25 18:24	4°♄26'26	18.30970 AU
max. Earth dist.	3283 May 27 13:34	7°♄07'13	20.71325 AU	direct	3290 Mar 10 05:16	2°♄26'13	
retrograde	3283 Sep 15 08:50	11°♄13'31					
opposition	3283 Dec 01 04:33	9°♄12'51	0°-10'-6	conjunction	3290 Jun 26 13:14	6°♄33'46	0°12'08
min. Earth dist.	3283 Nov 30 23:08	9°♄13'25	18.68499 AU	minimum elong	3290 Jun 26 13:14	6°♄33'46	0°12'07
direct	3284 Feb 13 21:43	7°♄14'29		behind sun begin	3290 Jun 26 08:46	6°♄33'07	
				behind sun end	3290 Jun 26 17:43	6°♄34'24	
conjunction	3284 May 30 19:12	11°♄14'14	0°-7'-36	max. Earth dist.	3290 Jun 26 09:39	6°♄33'15	20.27746 AU
minimum elong	3284 May 30 19:12	11°♄14'14	0°07'37	retrograde	3290 Oct 15 13:52	10°♄46'56	
behind sun begin	3284 May 30 13:08	11°♄13'23		opposition	3290 Dec 30 03:14	8°♄45'11	0°15'14
behind sun end	3284 May 31 01:17	11°♄15'05		min. Earth dist.	3290 Dec 30 06:30	8°♄44'50	18.24475 AU
max. Earth dist.	3284 May 31 01:18	11°♄15'05	20.65622 AU	direct	3291 Mar 14 18:28	6°♄44'21	
retrograde	3284 Sep 18 21:42	15°♄22'13					
opposition	3284 Dec 04 13:13	13°♄21'22	0°-6'-33	conjunction	3291 Jul 01 07:28	10°♄53'24	0°15'20
min. Earth dist.	3284 Dec 04 08:27	13°♄21'52	18.62641 AU	minimum elong	3291 Jul 01 07:27	10°♄53'24	0°15'21
direct	3285 Feb 17 06:24	11°♄22'39		behind sun begin	3291 Jul 01 05:51	10°♄53'10	
				behind sun end	3291 Jul 01 09:04	10°♄53'38	
conjunction	3285 Jun 04 07:59	15°♄23'31	0°-4'-23	max. Earth dist.	3291 Jul 01 01:30	10°♄52'32	20.21241 AU
minimum elong	3285 Jun 04 07:59	15°♄23'31	0°04'25	retrograde	3291 Oct 20 05:03	15°♄07'30	
behind sun begin	3285 Jun 04 01:23	15°♄22'35		opposition	3292 Jan 03 15:38	13°♄05'41	0°18'46
behind sun end	3285 Jun 04 14:35	15°♄24'27		min. Earth dist.	3292 Jan 03 21:27	13°♄05'04	18.17966 AU
max. Earth dist.	3285 Jun 04 11:24	15°♄23'58	20.59639 AU	direct	3292 Mar 18 05:26	11°♄04'31	
retrograde	3285 Sep 23 10:01	19°♄32'19					
opposition	3285 Dec 08 22:27	17°♄31'16	0°-2'-57	conjunction	3292 Jul 05 02:43	15°♄15'08	0°18'30
min. Earth dist.	3285 Dec 08 19:55	17°♄31'32	18.56552 AU	minimum elong	3292 Jul 05 02:43	15°♄15'08	0°18'29
direct	3286 Feb 21 14:22	15°♄32'10		max. Earth dist.	3292 Jul 04 19:30	15°♄14'04	20.14723 AU
				retrograde	3292 Oct 24 00:05	19°♄30'09	
conjunction	3286 Jun 08 21:48	19°♄34'15	0°-1'-5	opposition	3293 Jan 07 04:44	17°♄28'16	0°22'15
minimum elong	3286 Jun 08 21:50	19°♄34'15	0°01'06	min. Earth dist.	3293 Jan 07 11:08	17°♄27'35	18.11429 AU
behind sun begin	3286 Jun 08 15:07	19°♄33'18		direct	3293 Mar 22 20:43	15°♄26'46	
behind sun end	3286 Jun 09 04:33	19°♄35'12					
max. Earth dist.	3286 Jun 09 00:41	19°♄34'36	20.53458 AU	conjunction	3293 Jul 09 22:44	19°♄38'56	0°21'34
retrograde	3286 Sep 28 00:15	23°♄43'51		minimum elong	3293 Jul 09 22:44	19°♄38'56	0°21'34
asc. node	3286 Oct 05 14:29	23°♄42'25		max. Earth dist.	3293 Jul 09 13:15	19°♄37'32	20.08154 AU
opposition	3286 Dec 13 07:51	21°♄42'38	0°00'41	retrograde	3293 Oct 28 16:21	23°♄54'53	
min. Earth dist.	3286 Dec 13 05:48	21°♄42'50	18.50287 AU	opposition	3294 Jan 11 18:45	21°♄52'54	0°25'37
direct	3287 Feb 26 00:06	19°♄43'10		min. Earth dist.	3294 Jan 12 03:46	21°♄51'56	18.04845 AU

direct	3294 Mar 27 09:53	19° <del>5</del> 51'03			3301 Nov 10 21:31	0° <del>7</del>	
				retrograde	3301 Dec 05 12:06	0° <del>7</del> 16'36	
conjunction	3294 Jul 14 19:54	24° <del>5</del> 04'46	0°24'33		3301 Dec 30 08:01	30° <del>8</del>	
minimum elong	3294 Jul 14 19:54	24° <del>5</del> 04'46	0°24'32	opposition	3302 Feb 17 10:45	28° <del>0</del> 13'42	0°46'08
max. Earth dist.	3294 Jul 14 08:38	24° <del>5</del> 03'05	20.01549 AU	min. Earth dist.	3302 Feb 18 05:02	28° <del>0</del> 11'42	17.55488 AU
retrograde	3294 Nov 02 12:20	28° <del>5</del> 21'35		direct	3302 May 03 16:00	26° <del>0</del> 08'42	
opposition	3295 Jan 16 09:13	26° <del>5</del> 19'30	0°28'52		3302 Aug 13 18:39	0° <del>7</del>	
min. Earth dist.	3295 Jan 16 18:56	26° <del>5</del> 18'27	17.98221 AU				
direct	3295 Apr 01 03:18	24° <del>5</del> 17'15		conjunction	3302 Aug 22 23:07	0° <del>7</del> 33'54	0°42'06
				minimum elong	3302 Aug 22 23:06	0° <del>7</del> 33'54	0°42'05
conjunction	3295 Jul 19 17:58	28° <del>5</del> 32'32	0°27'24	max. Earth dist.	3302 Aug 22 00:21	0° <del>7</del> 30'24	19.53027 AU
minimum elong	3295 Jul 19 17:58	28° <del>5</del> 32'32	0°27'23	retrograde	3302 Dec 10 11:39	4° <del>7</del> 56'20	
max. Earth dist.	3295 Jul 19 04:40	28° <del>5</del> 30'32	19.94903 AU	opposition	3303 Feb 22 06:46	2° <del>7</del> 53'24	0°47'33
	3295 Aug 13 11:00	0° <del>0</del>		min. Earth dist.	3303 Feb 23 01:23	2° <del>7</del> 51'22	17.50740 AU
retrograde	3295 Nov 07 05:48	2° <del>0</del> 50'10		direct	3303 May 08 14:26	0° <del>7</del> 48'08	
opposition	3296 Jan 21 00:39	0° <del>0</del> 47'58	0°31'58	max. Earth dist.	3303 Aug 27 04:07	5° <del>7</del> 11'10	19.48514 AU
min. Earth dist.	3296 Jan 21 12:52	0° <del>0</del> 46'39	17.91584 AU				
	3296 Feb 09 02:06	30° <del>8</del>		conjunction	3303 Aug 28 02:17	5° <del>7</del> 14'35	0°43'14
direct	3296 Apr 04 18:45	28° <del>5</del> 45'19		minimum elong	3303 Aug 28 02:17	5° <del>7</del> 14'35	0°43'14
	3296 May 29 01:00	0° <del>0</del>		retrograde	3303 Dec 15 10:54	9° <del>7</del> 37'31	
				opposition	3304 Feb 27 03:40	7° <del>7</del> 34'37	0°48'41
conjunction	3296 Jul 23 16:38	3° <del>0</del> 02'06	0°30'06	min. Earth dist.	3304 Feb 27 22:48	7° <del>7</del> 32'31	17.46475 AU
minimum elong	3296 Jul 23 16:38	3° <del>0</del> 02'06	0°30'06	direct	3304 May 12 12:11	5° <del>7</del> 29'10	
max. Earth dist.	3296 Jul 23 01:24	2° <del>0</del> 59'48	19.88289 AU	max. Earth dist.	3304 Aug 31 05:47	9° <del>7</del> 53'04	19.44501 AU
retrograde	3296 Nov 11 02:31	7° <del>0</del> 20'33					
opposition	3297 Jan 24 16:34	5° <del>0</del> 18'12	0°34'54	conjunction	3304 Sep 01 05:32	9° <del>7</del> 56'45	0°44'05
min. Earth dist.	3297 Jan 25 05:20	5° <del>0</del> 16'49	17.85006 AU	minimum elong	3304 Sep 01 05:31	9° <del>7</del> 56'45	0°44'05
direct	3297 Apr 09 13:38	3° <del>0</del> 15'08		retrograde	3304 Dec 19 11:12	14° <del>7</del> 20'11	
				opposition	3305 Mar 03 01:12	12° <del>7</del> 17'19	0°49'29
conjunction	3297 Jul 28 16:10	7° <del>0</del> 33'25	0°32'38	min. Earth dist.	3305 Mar 03 20:51	12° <del>7</del> 15'10	17.42717 AU
minimum elong	3297 Jul 28 16:10	7° <del>0</del> 33'25	0°32'38	direct	3305 May 17 11:48	10° <del>7</del> 11'42	
max. Earth dist.	3297 Jul 27 23:38	7° <del>0</del> 30'55	19.81756 AU	max. Earth dist.	3305 Sep 05 10:28	14° <del>7</del> 36'48	19.40979 AU
retrograde	3297 Nov 15 21:34	11° <del>0</del> 52'37					
opposition	3298 Jan 29 09:16	9° <del>0</del> 50'08	0°37'37	conjunction	3305 Sep 06 09:29	14° <del>7</del> 40'23	0°44'39
min. Earth dist.	3298 Jan 30 00:09	9° <del>0</del> 48'31	17.78555 AU	minimum elong	3305 Sep 06 09:29	14° <del>7</del> 40'23	0°44'38
direct	3298 Apr 14 07:01	7° <del>0</del> 46'38		retrograde	3305 Dec 24 11:07	19° <del>7</del> 04'11	
				opposition	3306 Mar 07 23:18	17° <del>7</del> 01'25	0°49'57
conjunction	3298 Aug 02 16:20	12° <del>0</del> 06'23	0°34'59	min. Earth dist.	3306 Mar 08 19:10	16° <del>7</del> 59'14	17.39424 AU
minimum elong	3298 Aug 02 16:20	12° <del>0</del> 06'23	0°35'00	direct	3306 May 22 11:39	14° <del>7</del> 55'39	
max. Earth dist.	3298 Aug 01 21:48	12° <del>0</del> 03'34	19.75401 AU				
	3298 Sep 23 12:26	15° <del>0</del>		conjunction	3306 Sep 11 13:42	19° <del>7</del> 25'18	0°44'54
retrograde	3298 Nov 20 19:13	16° <del>0</del> 26'19		minimum elong	3306 Sep 11 13:42	19° <del>7</del> 25'17	0°44'55
	3299 Jan 19 23:07	15° <del>8</del>		max. Earth dist.	3306 Sep 10 13:12	19° <del>7</del> 21'28	19.37912 AU
opposition	3299 Feb 03 02:32	14° <del>0</del> 23'42	0°40'08	retrograde	3306 Dec 29 11:11	23° <del>7</del> 49'26	
min. Earth dist.	3299 Feb 03 17:53	14° <del>0</del> 22'02	17.72310 AU	opposition	3307 Mar 12 22:14	21° <del>7</del> 46'43	0°50'05
direct	3299 Apr 19 03:10	12° <del>0</del> 19'46		min. Earth dist.	3307 Mar 13 18:56	21° <del>7</del> 44'27	17.36590 AU
	3299 Jul 10 10:23	15° <del>0</del>		direct	3307 May 27 12:48	19° <del>7</del> 40'50	
conjunction	3299 Aug 07 17:16	16° <del>0</del> 40'58	0°37'07	conjunction	3307 Sep 16 18:10	24° <del>7</del> 11'18	0°44'52
minimum elong	3299 Aug 07 17:16	16° <del>0</del> 40'58	0°37'07	minimum elong	3307 Sep 16 18:10	24° <del>7</del> 11'18	0°44'52
max. Earth dist.	3299 Aug 06 22:08	16° <del>0</del> 38'03	19.69267 AU	max. Earth dist.	3307 Sep 15 18:16	24° <del>7</del> 07'34	19.35289 AU
retrograde	3299 Nov 25 15:37	21° <del>0</del> 01'33		retrograde	3308 Jan 03 11:36	28° <del>7</del> 35'39	
opposition	3300 Feb 07 20:34	18° <del>0</del> 58'50	0°42'24	opposition	3308 Mar 16 21:43	26° <del>7</del> 33'00	0°49'53
min. Earth dist.	3300 Feb 08 13:33	18° <del>0</del> 56'59	17.66329 AU	min. Earth dist.	3308 Mar 17 18:05	26° <del>7</del> 30'46	17.34180 AU
direct	3300 Apr 23 22:12	16° <del>0</del> 54'31		direct	3308 May 31 15:30	24° <del>7</del> 27'02	
conjunction	3300 Aug 12 18:39	21° <del>0</del> 17'05	0°39'02	conjunction	3308 Sep 20 22:41	28° <del>7</del> 58'09	0°44'31
minimum elong	3300 Aug 12 18:38	21° <del>0</del> 17'05	0°39'01	minimum elong	3308 Sep 20 22:41	28° <del>7</del> 58'09	0°44'31
max. Earth dist.	3300 Aug 11 21:35	21° <del>0</del> 13'52	19.63455 AU	max. Earth dist.	3308 Sep 19 21:54	28° <del>7</del> 54'16	19.33098 AU
retrograde	3300 Nov 30 14:14	25° <del>0</del> 38'21			3308 Oct 07 12:14	0° <del>0</del>	
opposition	3301 Feb 12 15:16	23° <del>0</del> 35'30	0°44'24	retrograde	3309 Jan 07 11:12	3° <del>0</del> 22'38	
min. Earth dist.	3301 Feb 13 08:31	23° <del>0</del> 33'38	17.60708 AU	opposition	3309 Mar 21 21:45	1° <del>0</del> 20'02	0°49'19
direct	3301 Apr 28 19:33	21° <del>0</del> 30'49		min. Earth dist.	3309 Mar 22 19:00	1° <del>0</del> 17'43	17.32223 AU
					3309 Apr 23 23:34	30° <del>8</del>	
conjunction	3301 Aug 17 20:36	25° <del>0</del> 54'44	0°40'41	direct	3309 Jun 05 17:58	29° <del>7</del> 13'57	
minimum elong	3301 Aug 17 20:36	25° <del>0</del> 54'44	0°40'42		3309 Jul 17 18:08	0° <del>0</del>	
max. Earth dist.	3301 Aug 16 23:42	25° <del>0</del> 51'32	19.58019 AU	max. Earth dist.	3309 Sep 25 02:53	3° <del>0</del> 41'47	19.31366 AU



conjunction	3324 Dec 06 13:15	14°♌40'01	0°05'09	behind sun end	3331 Jan 02 15:42	11°♊33'10	
minimum elong	3324 Dec 06 13:15	14°♌40'01	0°05'09	max. Earth dist.	3331 Jan 02 20:01	11°♊33'49	20.07303 AU
behind sun begin	3324 Dec 06 06:51	14°♌39'02		retrograde	3331 Apr 19 23:34	15°♊43'45	
behind sun end	3324 Dec 06 19:39	14°♌40'59		opposition	3331 Jul 04 22:29	13°♊43'47	0°-19'-10
max. Earth dist.	3324 Dec 06 08:18	14°♌39'16	19.69476 AU	min. Earth dist.	3331 Jul 04 14:43	13°♊44'35	18.10754 AU
retrograde	3325 Mar 23 15:17	18°♌56'25		direct	3331 Sep 20 04:42	11°♊42'12	
opposition	3325 Jun 06 14:06	16°♌55'44	0°03'41				
min. Earth dist.	3325 Jun 06 17:35	16°♌55'22	17.72313 AU	conjunction	3332 Jan 07 02:57	15°♊54'56	0°-18'-52
direct	3325 Aug 22 18:43	14°♌52'04		minimum elong	3332 Jan 07 02:56	15°♊54'56	0°18'53
				max. Earth dist.	3332 Jan 07 11:19	15°♊56'12	20.14266 AU
conjunction	3325 Dec 11 07:53	19°♌13'52	0°01'33	retrograde	3332 Apr 23 12:59	20°♊04'55	
minimum elong	3325 Dec 11 07:53	19°♌13'52	0°01'33	opposition	3332 Jul 08 17:42	18°♊05'08	0°-22'-37
behind sun begin	3325 Dec 11 01:17	19°♌12'52		min. Earth dist.	3332 Jul 08 09:17	18°♊06'00	18.17759 AU
behind sun end	3325 Dec 11 14:29	19°♌14'52		direct	3332 Sep 23 22:24	16°♊03'59	
max. Earth dist.	3325 Dec 11 04:12	19°♌13'21	19.75236 AU				
retrograde	3326 Mar 28 09:49	23°♌29'21		conjunction	3333 Jan 10 15:10	20°♊15'13	0°-21'-54
desc. node	3326 May 15 16:05	22°♌32'47		minimum elong	3333 Jan 10 15:10	20°♊15'13	0°21'55
opposition	3326 Jun 11 13:12	21°♌28'46	0°00'-16	max. Earth dist.	3333 Jan 11 00:38	20°♊16'39	20.21292 AU
min. Earth dist.	3326 Jun 11 15:47	21°♌28'30	17.78181 AU	retrograde	3333 Apr 28 04:49	24°♊24'21	
direct	3326 Aug 27 17:29	19°♌25'24		opposition	3333 Jul 13 11:56	22°♊24'45	0°-25'-54
				min. Earth dist.	3333 Jul 13 00:58	22°♊25'52	18.24781 AU
conjunction	3326 Dec 16 01:25	23°♌45'44	0°-2'-6	direct	3333 Sep 28 17:04	20°♊24'01	
minimum elong	3326 Dec 16 01:24	23°♌45'44	0°02'07				
behind sun begin	3326 Dec 15 18:49	23°♌44'44		conjunction	3334 Jan 15 02:45	24°♊33'48	0°-24'-48
behind sun end	3326 Dec 16 07:59	23°♌46'43		minimum elong	3334 Jan 15 02:44	24°♊33'48	0°24'48
max. Earth dist.	3326 Dec 15 23:47	23°♌45'33	19.81212 AU	max. Earth dist.	3334 Jan 15 14:27	24°♊35'33	20.28286 AU
retrograde	3327 Apr 02 04:54	28°♌00'16		retrograde	3334 May 02 17:05	28°♊42'07	
opposition	3327 Jun 16 11:35	25°♌59'47	0°-4'-13	opposition	3334 Jul 18 05:54	26°♊42'41	0°-29'-1
min. Earth dist.	3327 Jun 16 11:32	25°♌59'48	17.84253 AU	min. Earth dist.	3334 Jul 17 18:33	26°♊43'51	18.31744 AU
direct	3327 Sep 01 17:07	23°♌56'43		direct	3334 Oct 03 09:04	24°♊42'22	
conjunction	3327 Dec 20 17:58	28°♌15'32	0°-5'-38	conjunction	3335 Jan 19 13:25	28°♊50'42	0°-27'-32
minimum elong	3327 Dec 20 17:58	28°♌15'33	0°05'39	minimum elong	3335 Jan 19 13:25	28°♊50'42	0°27'34
behind sun begin	3327 Dec 20 11:39	28°♌14'35		max. Earth dist.	3335 Jan 20 01:52	28°♊52'34	20.35195 AU
behind sun end	3327 Dec 21 00:18	28°♌16'30			3335 Feb 08 00:03	0°≈	
max. Earth dist.	3327 Dec 20 18:17	28°♌15'35	19.87395 AU	retrograde	3335 May 07 07:57	2°≈58'14	
	3328 Jan 18 18:26	0°♊		opposition	3335 Jul 22 23:05	0°≈58'58	0°-31'-58
retrograde	3328 Apr 05 21:31	2°♊29'08		min. Earth dist.	3335 Jul 22 09:27	1°≈00'21	18.38582 AU
opposition	3328 Jun 20 09:20	0°♊28'45	0°-8'-6		3335 Aug 17 06:13	30°♊	
min. Earth dist.	3328 Jun 20 08:21	0°♊28'51	17.90564 AU	direct	3335 Oct 08 01:43	28°♊59'02	
	3328 Jul 02 00:30	30°♊			3335 Nov 26 11:59	0°≈	
direct	3328 Sep 05 14:19	28°♌26'00					
	3328 Nov 06 11:10	0°♊		conjunction	3336 Jan 23 23:41	3°≈05'57	0°-30'-7
				minimum elong	3336 Jan 23 23:41	3°≈05'57	0°30'07
conjunction	3328 Dec 24 09:31	2°♊43'18	0°-9'-4	max. Earth dist.	3336 Jan 24 14:10	3°≈08'07	20.41928 AU
minimum elong	3328 Dec 24 09:31	2°♊43'18	0°09'05	retrograde	3336 May 10 19:21	7°≈12'43	
behind sun begin	3328 Dec 24 03:54	2°♊42'27		opposition	3336 Jul 26 15:34	5°≈13'35	0°-34'-43
behind sun end	3328 Dec 24 15:08	2°♊44'08		min. Earth dist.	3336 Jul 26 01:47	5°≈14'59	18.45214 AU
max. Earth dist.	3328 Dec 24 11:43	2°♊43'37	19.93824 AU	direct	3336 Oct 11 16:19	3°≈14'03	
retrograde	3329 Apr 10 15:43	6°♊55'56					
opposition	3329 Jun 25 06:18	4°♊55'40	0°-11'-54	conjunction	3337 Jan 27 09:12	7°≈19'34	0°-32'-31
min. Earth dist.	3329 Jun 25 02:23	4°♊56'05	17.97099 AU	minimum elong	3337 Jan 27 09:12	7°≈19'34	0°32'32
direct	3329 Sep 10 12:26	2°♊53'17		max. Earth dist.	3337 Jan 27 23:52	7°≈21'45	20.48435 AU
				retrograde	3337 May 15 08:51	11°≈25'37	
conjunction	3329 Dec 29 00:12	7°♊09'03	0°-12'-26	opposition	3337 Jul 31 07:21	9°≈26'35	0°-37'-16
minimum elong	3329 Dec 29 00:12	7°♊09'03	0°12'28	min. Earth dist.	3337 Jul 30 15:41	9°≈28'10	18.51585 AU
behind sun begin	3329 Dec 28 19:51	7°♊08'24		direct	3337 Oct 16 07:01	7°≈27'22	
behind sun end	3329 Dec 29 04:34	7°♊09'42					
max. Earth dist.	3329 Dec 29 04:38	7°♊09'43	20.00462 AU	conjunction	3338 Jan 31 18:07	11°≈31'33	0°-34'-44
retrograde	3330 Apr 15 06:25	11°♊20'47		minimum elong	3338 Jan 31 18:07	11°≈31'33	0°34'45
opposition	3330 Jun 30 02:47	9°♊20'40	0°-15'-36	max. Earth dist.	3338 Feb 01 10:39	11°≈34'01	20.54642 AU
min. Earth dist.	3330 Jun 29 21:57	9°♊21'10	18.03844 AU		3338 Apr 11 11:17	15°≈	
direct	3330 Sep 15 08:13	7°♊18'40		retrograde	3338 May 19 19:27	15°≈36'53	
					3338 Jun 28 11:40	15°♊≈	
conjunction	3331 Jan 02 14:01	11°♊32'54	0°-15'-42	opposition	3338 Aug 04 22:36	13°≈37'56	0°-39'-36
minimum elong	3331 Jan 02 14:01	11°♊32'54	0°15'43	min. Earth dist.	3338 Aug 04 06:47	13°≈39'32	18.57638 AU
behind sun begin	3331 Jan 02 12:19	11°♊32'39		direct	3338 Oct 20 20:33	11°≈39'02	

	3339 Jan 24 06:31	15° <del>44</del> '		direct	3346 Nov 23 04:33	14° <del>41</del> '20"06	
conjunction	3339 Feb 05 02:21	15° <del>44</del> '41"54	0°-36'-45	conjunction	3347 Mar 09 02:48	18° <del>41</del> '14"59	0°-45'-8
minimum elong	3339 Feb 05 02:21	15° <del>44</del> '41"54	0°36'45	minimum elong	3347 Mar 09 02:48	18° <del>41</del> '14"59	0°45'10
max. Earth dist.	3339 Feb 05 18:53	15° <del>44</del> '44"21	20.60544 AU	max. Earth dist.	3347 Mar 10 01:46	18° <del>41</del> '18"18	20.97662 AU
retrograde	3339 May 24 07:26	19° <del>44</del> '46"34		retrograde	3347 Jun 26 10:45	22° <del>41</del> '16"07	
opposition	3339 Aug 09 13:00	17° <del>44</del> '47"38	0°-41'-43	min. Earth dist.	3347 Sep 11 10:17	20° <del>41</del> '19"43	18.99348 AU
min. Earth dist.	3339 Aug 08 19:31	17° <del>44</del> '49"24	18.63388 AU	opposition	3347 Sep 12 08:57	20° <del>41</del> '17"28	0°-49'-57
direct	3339 Oct 25 09:26	15° <del>44</del> '49"00		direct	3347 Nov 27 11:28	18° <del>41</del> '20"47	
conjunction	3340 Feb 09 10:01	19° <del>44</del> '50"36	0°-38'-33	conjunction	3348 Mar 12 07:50	22° <del>41</del> '15"03	0°-45'-12
minimum elong	3340 Feb 09 10:01	19° <del>44</del> '50"36	0°38'35	minimum elong	3348 Mar 12 07:50	22° <del>41</del> '15"03	0°45'13
max. Earth dist.	3340 Feb 10 04:27	19° <del>44</del> '53"19	20.66129 AU	max. Earth dist.	3348 Mar 13 08:01	22° <del>41</del> '18"32	21.00835 AU
retrograde	3340 May 27 16:59	23° <del>44</del> '54"37		retrograde	3348 Jun 29 19:11	26° <del>41</del> '16"01	
min. Earth dist.	3340 Aug 12 09:01	21° <del>44</del> '57"30	18.68827 AU	opposition	3348 Sep 15 18:14	24° <del>41</del> '17"23	0°-49'-54
opposition	3340 Aug 13 02:43	21° <del>44</del> '55"43	0°-43'-35	min. Earth dist.	3348 Sep 14 19:45	24° <del>41</del> '19"38	19.02284 AU
direct	3340 Oct 28 21:19	19° <del>44</del> '57"20		direct	3348 Nov 30 19:08	22° <del>41</del> '20"55	
conjunction	3341 Feb 12 17:00	23° <del>44</del> '57"43	0°-40'-9	conjunction	3349 Mar 16 12:39	26° <del>41</del> '14"38	0°-45'-3
minimum elong	3341 Feb 12 17:00	23° <del>44</del> '57"43	0°40'10	minimum elong	3349 Mar 16 12:39	26° <del>41</del> '14"38	0°45'05
max. Earth dist.	3341 Feb 13 11:25	24° <del>44</del> '00"26	20.71429 AU	max. Earth dist.	3349 Mar 17 11:42	26° <del>41</del> '17"57	21.03527 AU
retrograde	3341 Jun 01 03:46	28° <del>44</del> '01"08			3349 Jun 08 21:08	0° <del>41</del> '	
opposition	3341 Aug 17 15:33	26° <del>44</del> '02"14	0°-45'-14	retrograde	3349 Jul 04 04:02	0° <del>41</del> '15"29	
min. Earth dist.	3341 Aug 16 20:20	26° <del>44</del> '04"10	18.74003 AU		3349 Jul 29 18:36	30° <del>41</del> ' <del>18</del> "	
direct	3341 Nov 02 08:33	24° <del>44</del> '04"04		min. Earth dist.	3349 Sep 19 04:50	28° <del>41</del> '19"05	19.04723 AU
conjunction	3342 Feb 16 23:36	28° <del>44</del> '03"21	0°-41'-32	opposition	3349 Sep 20 03:10	28° <del>41</del> '16"51	0°-49'-36
minimum elong	3342 Feb 16 23:36	28° <del>44</del> '03"21	0°41'34	direct	3349 Dec 05 01:06	26° <del>41</del> '20"31	
max. Earth dist.	3342 Feb 17 20:02	28° <del>44</del> '06"21	20.76470 AU		3350 Mar 16 17:43	0° <del>41</del> '	
	3342 Mar 23 12:40	0° <del>41</del> '		conjunction	3350 Mar 20 17:43	0° <del>41</del> '13"47	0°-44'-41
retrograde	3342 Jun 05 12:28	2° <del>41</del> '06"14		minimum elong	3350 Mar 20 17:43	0° <del>41</del> '13"47	0°44'42
min. Earth dist.	3342 Aug 21 08:17	0° <del>41</del> '09"19	18.78928 AU	max. Earth dist.	3350 Mar 21 17:34	0° <del>41</del> '17"13	21.05686 AU
opposition	3342 Aug 22 03:57	0° <del>41</del> '07"21	0°-46'-37	retrograde	3350 Jul 08 11:57	4° <del>41</del> '14"33	
	3342 Aug 25 05:16	30° <del>41</del> ' <del>18</del> "		opposition	3350 Sep 24 11:50	2° <del>41</del> '15"55	0°-49'-4
direct	3342 Nov 06 18:21	28° <del>44</del> '09"27		min. Earth dist.	3350 Sep 23 13:52	2° <del>41</del> '18"06	19.06597 AU
	3343 Jan 13 21:47	0° <del>41</del> '		direct	3350 Dec 09 08:38	0° <del>41</del> '19"42	
conjunction	3343 Feb 21 05:32	2° <del>41</del> '07"39	0°-42'-42	conjunction	3351 Mar 24 22:37	4° <del>41</del> '12"34	0°-44'-6
minimum elong	3343 Feb 21 05:32	2° <del>41</del> '07"39	0°42'42	minimum elong	3351 Mar 24 22:37	4° <del>41</del> '12"34	0°44'07
max. Earth dist.	3343 Feb 22 01:56	2° <del>41</del> '10"38	20.81279 AU	max. Earth dist.	3351 Mar 25 20:57	4° <del>41</del> '15"46	21.07277 AU
retrograde	3343 Jun 09 22:48	6° <del>41</del> '11"04		retrograde	3351 Jul 12 20:43	8° <del>41</del> '13"18	
opposition	3343 Aug 26 15:38	4° <del>41</del> '11"13	0°-47'-46	opposition	3351 Sep 28 20:11	6° <del>41</del> '14"34	0°-48'-17
min. Earth dist.	3343 Aug 25 18:38	4° <del>41</del> '13"19	18.83622 AU	min. Earth dist.	3351 Sep 27 22:45	6° <del>41</del> '16"43	19.07897 AU
direct	3343 Nov 11 04:12	2° <del>41</del> '13"33		direct	3351 Dec 13 14:15	4° <del>41</del> '18"23	
conjunction	3344 Feb 25 11:21	6° <del>41</del> '10"49	0°-43'-38	conjunction	3352 Mar 28 03:47	8° <del>41</del> '10"56	0°-43'-18
minimum elong	3344 Feb 25 11:21	6° <del>41</del> '10"49	0°43'39	minimum elong	3352 Mar 28 03:47	8° <del>41</del> '10"56	0°43'19
max. Earth dist.	3344 Feb 26 09:37	6° <del>41</del> '14"04	20.85833 AU	max. Earth dist.	3352 Mar 29 02:37	8° <del>41</del> '14"13	21.08279 AU
retrograde	3344 Jun 13 07:13	10° <del>41</del> '12"48		retrograde	3352 Jul 16 03:44	12° <del>41</del> '11"39	
min. Earth dist.	3344 Aug 29 05:19	8° <del>41</del> '16"08	18.88041 AU	min. Earth dist.	3352 Oct 01 07:03	10° <del>41</del> '14"56	19.08606 AU
opposition	3344 Aug 30 02:35	8° <del>41</del> '14"00	0°-48'-41	opposition	3352 Oct 02 03:59	10° <del>41</del> '12"50	0°-47'-17
direct	3344 Nov 14 12:20	6° <del>41</del> '16"36		direct	3352 Dec 16 21:13	8° <del>41</del> '16"40	
conjunction	3345 Feb 28 16:43	10° <del>41</del> '12"59	0°-44'-21	conjunction	3353 Apr 01 08:45	12° <del>41</del> '08"58	0°-42'-17
minimum elong	3345 Feb 28 16:43	10° <del>41</del> '12"59	0°44'22	minimum elong	3353 Apr 01 08:46	12° <del>41</del> '08"58	0°42'18
max. Earth dist.	3345 Mar 01 14:38	10° <del>41</del> '16"10	20.90112 AU	max. Earth dist.	3353 Apr 02 06:02	12° <del>41</del> '12"00	21.08727 AU
retrograde	3345 Jun 17 16:55	14° <del>41</del> '14"38		retrograde	3353 Jul 20 12:19	16° <del>41</del> '09"43	
opposition	3345 Sep 03 13:09	12° <del>41</del> '15"53	0°-49'-21	opposition	3353 Oct 06 11:40	14° <del>41</del> '10"46	0°-46'-3
min. Earth dist.	3345 Sep 02 14:59	12° <del>41</del> '18"06	18.92171 AU	min. Earth dist.	3353 Oct 05 15:21	14° <del>41</del> '12"48	19.08798 AU
direct	3345 Nov 18 20:48	10° <del>41</del> '18"44		direct	3353 Dec 21 02:24	12° <del>41</del> '14"33	
conjunction	3346 Mar 04 21:50	14° <del>41</del> '14"20	0°-44'-51	conjunction	3354 Apr 05 13:49	16° <del>41</del> '06"41	0°-41'-5
minimum elong	3346 Mar 04 21:50	14° <del>41</del> '14"20	0°44'52	minimum elong	3354 Apr 05 13:49	16° <del>41</del> '06"41	0°41'06
max. Earth dist.	3346 Mar 05 21:26	14° <del>41</del> '17"45	20.94067 AU	max. Earth dist.	3354 Apr 06 11:50	16° <del>41</del> '09"50	21.08671 AU
retrograde	3346 Jun 22 01:30	18° <del>41</del> '15"42		retrograde	3354 Jul 24 18:57	20° <del>41</del> '07"32	
opposition	3346 Sep 07 23:18	16° <del>41</del> '17"00	0°-49'-46	opposition	3354 Oct 10 19:02	18° <del>41</del> '08"26	0°-44'-36
min. Earth dist.	3346 Sep 07 01:00	16° <del>41</del> '19"14	18.95948 AU	min. Earth dist.	3354 Oct 09 23:01	18° <del>41</del> '10"27	19.08506 AU

direct	3354 Dec 25 08:30	16° $\Upsilon$ 12'10		retrograde	3362 Aug 26 16:14	22° $\text{♄}$ 01'11	
				opposition	3362 Nov 12 02:38	20° $\text{♄}$ 01'20	0°-26'00
conjunction	3355 Apr 09 19:02	20° $\Upsilon$ 04'14	0°-39'-40	min. Earth dist.	3362 Nov 11 13:04	20° $\text{♄}$ 02'43	18.92185 AU
minimum elong	3355 Apr 09 19:02	20° $\Upsilon$ 04'14	0°39'40	direct	3363 Jan 26 01:56	18° $\text{♄}$ 04'22	
max. Earth dist.	3355 Apr 10 15:33	20° $\Upsilon$ 07'09	21.08171 AU				
retrograde	3355 Jul 29 03:24	24° $\Upsilon$ 05'15		conjunction	3363 May 12 02:25	21° $\text{♄}$ 59'35	0°-22'-11
min. Earth dist.	3355 Oct 14 06:49	22° $\Upsilon$ 07'57	19.07803 AU	minimum elong	3363 May 12 02:25	21° $\text{♄}$ 59'35	0°22'13
opposition	3355 Oct 15 02:05	22° $\Upsilon$ 06'01	0°-42'-56	max. Earth dist.	3363 May 12 15:43	22° $\text{♄}$ 01'29	20.90286 AU
direct	3355 Dec 29 13:17	20° $\Upsilon$ 09'40		retrograde	3363 Aug 31 02:05	26° $\text{♄}$ 04'11	
				opposition	3363 Nov 16 10:01	24° $\text{♄}$ 04'13	0°-22'-56
conjunction	3356 Apr 13 00:37	24° $\Upsilon$ 01'47	0°-38'-4	min. Earth dist.	3363 Nov 15 22:30	24° $\text{♄}$ 05'23	18.88276 AU
minimum elong	3356 Apr 13 00:37	24° $\Upsilon$ 01'47	0°38'06	direct	3364 Jan 30 07:14	22° $\text{♄}$ 07'02	
max. Earth dist.	3356 Apr 13 21:44	24° $\Upsilon$ 04'48	21.07263 AU				
retrograde	3356 Aug 01 10:38	28° $\Upsilon$ 03'01		conjunction	3364 May 15 12:07	26° $\text{♄}$ 03'03	0°-19'-21
opposition	3356 Oct 18 08:59	26° $\Upsilon$ 03'40	0°-41'-4	minimum elong	3364 May 15 12:07	26° $\text{♄}$ 03'03	0°19'22
min. Earth dist.	3356 Oct 17 14:00	26° $\Upsilon$ 05'35	19.06696 AU	max. Earth dist.	3364 May 16 00:51	26° $\text{♄}$ 04'52	20.86129 AU
direct	3357 Jan 01 18:39	24° $\Upsilon$ 07'15			3364 Aug 16 05:37	0° $\text{♄}$	
				retrograde	3364 Sep 03 12:46	0° $\text{♄}$ 08'16	
conjunction	3357 Apr 17 06:10	27° $\Upsilon$ 59'30	0°-36'-17		3364 Sep 21 23:45	30° $\text{♄}$	
minimum elong	3357 Apr 17 06:10	27° $\Upsilon$ 59'30	0°36'18	opposition	3364 Nov 19 17:41	28° $\text{♄}$ 08'11	0°-19'-44
max. Earth dist.	3357 Apr 18 01:41	28° $\Upsilon$ 02'17	21.05975 AU	min. Earth dist.	3364 Nov 19 07:04	28° $\text{♄}$ 09'16	18.83867 AU
	3357 May 24 01:11	0° $\text{♄}$		direct	3365 Feb 02 14:28	26° $\text{♄}$ 10'46	
retrograde	3357 Aug 05 18:56	2° $\text{♄}$ 01'04			3365 May 17 17:17	0° $\text{♄}$	
opposition	3357 Oct 22 15:55	0° $\text{♄}$ 01'35	0°-39'00				
min. Earth dist.	3357 Oct 21 21:47	0° $\text{♄}$ 03'25	19.05228 AU	conjunction	3365 May 19 22:05	0° $\text{♄}$ 07'36	0°-16'-24
	3357 Oct 23 07:38	30° $\text{♄}$		minimum elong	3365 May 19 22:05	0° $\text{♄}$ 07'36	0°16'26
direct	3358 Jan 05 23:18	28° $\Upsilon$ 05'06		max. Earth dist.	3365 May 20 08:01	0° $\text{♄}$ 09'01	20.81495 AU
	3358 Mar 16 15:01	0° $\text{♄}$		retrograde	3365 Sep 07 23:20	4° $\text{♄}$ 13'30	
				opposition	3365 Nov 24 01:43	2° $\text{♄}$ 13'13	0°-16'-25
conjunction	3358 Apr 21 12:20	1° $\text{♄}$ 57'37	0°-34'-19	min. Earth dist.	3365 Nov 23 17:12	2° $\text{♄}$ 14'05	18.79009 AU
minimum elong	3358 Apr 21 12:20	1° $\text{♄}$ 57'37	0°34'21	direct	3366 Feb 06 20:37	0° $\text{♄}$ 15'30	
max. Earth dist.	3358 Apr 22 08:22	2° $\text{♄}$ 00'28	21.04325 AU				
retrograde	3358 Aug 10 03:25	5° $\text{♄}$ 59'31		conjunction	3366 May 24 09:02	4° $\text{♄}$ 13'14	0°-13'-22
opposition	3358 Oct 26 22:40	3° $\text{♄}$ 59'57	0°-36'-44	minimum elong	3366 May 24 09:02	4° $\text{♄}$ 13'14	0°13'23
min. Earth dist.	3358 Oct 26 04:53	4° $\text{♄}$ 01'45	19.03391 AU	behind sun begin	3366 May 24 05:18	4° $\text{♄}$ 12'43	
direct	3359 Jan 10 04:36	2° $\text{♄}$ 03'25		behind sun end	3366 May 24 12:46	4° $\text{♄}$ 13'46	
				max. Earth dist.	3366 May 24 18:27	4° $\text{♄}$ 14'35	20.76435 AU
conjunction	3359 Apr 25 18:45	5° $\text{♄}$ 56'16	0°-32'-12	retrograde	3366 Sep 12 10:56	8° $\text{♄}$ 19'48	
minimum elong	3359 Apr 25 18:45	5° $\text{♄}$ 56'16	0°32'13	opposition	3366 Nov 28 09:44	6° $\text{♄}$ 19'19	0°-13'00
max. Earth dist.	3359 Apr 26 12:54	5° $\text{♄}$ 58'51	21.02318 AU	min. Earth dist.	3366 Nov 28 02:04	6° $\text{♄}$ 20'07	18.73750 AU
retrograde	3359 Aug 14 11:49	9° $\text{♄}$ 58'37		direct	3367 Feb 11 04:44	4° $\text{♄}$ 21'17	
opposition	3359 Oct 31 05:34	7° $\text{♄}$ 58'58	0°-34'-18				
min. Earth dist.	3359 Oct 30 13:00	8° $\text{♄}$ 00'39	19.01197 AU	conjunction	3367 May 28 20:29	8° $\text{♄}$ 19'59	0°-10'-15
direct	3360 Jan 14 09:04	6° $\text{♄}$ 02'20		minimum elong	3367 May 28 20:29	8° $\text{♄}$ 19'59	0°10'16
				behind sun begin	3367 May 28 15:12	8° $\text{♄}$ 19'14	
conjunction	3360 Apr 29 01:51	9° $\text{♄}$ 55'39	0°-29'-55	behind sun end	3367 May 29 01:46	8° $\text{♄}$ 20'44	
minimum elong	3360 Apr 29 01:51	9° $\text{♄}$ 55'39	0°29'56	max. Earth dist.	3367 May 29 03:08	8° $\text{♄}$ 20'55	20.71011 AU
max. Earth dist.	3360 Apr 29 20:12	9° $\text{♄}$ 58'16	20.99931 AU	retrograde	3367 Sep 16 22:11	12° $\text{♄}$ 27'16	
retrograde	3360 Aug 17 21:13	13° $\text{♄}$ 58'29		opposition	3367 Dec 02 18:12	10° $\text{♄}$ 26'34	0°-9'-30
opposition	3360 Nov 03 12:19	11° $\text{♄}$ 58'46	0°-31'-42	min. Earth dist.	3367 Dec 02 12:43	10° $\text{♄}$ 27'08	18.68172 AU
min. Earth dist.	3360 Nov 02 20:20	12° $\text{♄}$ 00'24	18.98607 AU	direct	3368 Feb 15 11:14	8° $\text{♄}$ 28'10	
direct	3361 Jan 17 14:52	10° $\text{♄}$ 02'04					
				conjunction	3368 Jun 01 08:43	12° $\text{♄}$ 27'55	0°-7'-4
conjunction	3361 May 03 09:18	13° $\text{♄}$ 55'56	0°-27'-29	minimum elong	3368 Jun 01 08:42	12° $\text{♄}$ 27'55	0°07'05
minimum elong	3361 May 03 09:18	13° $\text{♄}$ 55'56	0°27'31	behind sun begin	3368 Jun 01 02:31	12° $\text{♄}$ 27'02	
max. Earth dist.	3361 May 04 01:28	13° $\text{♄}$ 58'14	20.97155 AU	behind sun end	3368 Jun 01 14:53	12° $\text{♄}$ 28'47	
	3361 May 22 06:20	15° $\text{♄}$		max. Earth dist.	3368 Jun 01 14:57	12° $\text{♄}$ 28'47	20.65292 AU
retrograde	3361 Aug 22 06:07	17° $\text{♄}$ 59'19		retrograde	3368 Sep 20 11:09	16° $\text{♄}$ 35'55	
opposition	3361 Nov 07 19:26	15° $\text{♄}$ 59'32	0°-28'-56	opposition	3368 Dec 06 02:48	14° $\text{♄}$ 35'01	0°-5'-56
min. Earth dist.	3361 Nov 07 05:02	16° $\text{♄}$ 01'00	18.95624 AU	min. Earth dist.	3368 Dec 05 21:57	14° $\text{♄}$ 35'31	18.62326 AU
	3361 Dec 03 09:20	15° $\text{♄}$		direct	3369 Feb 18 20:29	12° $\text{♄}$ 36'15	
direct	3362 Jan 21 19:25	14° $\text{♄}$ 02'42					
	3362 Mar 10 15:04	15° $\text{♄}$		conjunction	3369 Jun 05 21:29	16° $\text{♄}$ 37'07	0°-3'-50
				minimum elong	3369 Jun 05 21:30	16° $\text{♄}$ 37'07	0°03'50
conjunction	3362 May 07 17:32	17° $\text{♄}$ 57'13	0°-24'-54	behind sun begin	3369 Jun 05 14:52	16° $\text{♄}$ 36'11	
minimum elong	3362 May 07 17:32	17° $\text{♄}$ 57'13	0°24'55	behind sun end	3369 Jun 06 04:09	16° $\text{♄}$ 38'03	
max. Earth dist.	3362 May 08 09:34	17° $\text{♄}$ 59'30	20.93953 AU	max. Earth dist.	3369 Jun 06 01:07	16° $\text{♄}$ 37'36	20.59349 AU



retrograde	3369 Sep 24 23:10	20°II45'54		conjunction	3376 Jul 06 16:03	16°☿28'00	0°19'03
opposition	3369 Dec 10 11:57	18°II44'48	0°-2'-19	minimum elong	3376 Jul 06 16:03	16°☿28'00	0°19'03
min. Earth dist.	3369 Dec 10 09:13	18°II45'05	18.56300 AU	max. Earth dist.	3376 Jul 06 08:49	16°☿26'56	20.14919 AU
direct	3370 Feb 23 03:42	16°II45'40		retrograde	3376 Oct 25 13:06	20°☿43'00	
conjunction	3370 Jun 10 11:14	20°II47'43	0°00'-30	opposition	3377 Jan 08 18:31	18°☿41'06	0°22'51
minimum elong	3370 Jun 10 11:14	20°II47'43	0°00'31	min. Earth dist.	3377 Jan 09 00:59	18°☿40'24	18.11592 AU
behind sun begin	3370 Jun 10 04:32	20°II46'46		direct	3377 Mar 24 10:19	16°☿39'36	
behind sun end	3370 Jun 10 17:57	20°II48'39		conjunction	3377 Jul 11 12:12	20°☿51'41	0°22'07
max. Earth dist.	3370 Jun 10 14:26	20°II48'07	20.53245 AU	minimum elong	3377 Jul 11 12:11	20°☿51'41	0°22'06
asc. node	3370 Aug 04 16:57	23°II42'32		max. Earth dist.	3377 Jul 11 02:24	20°☿50'14	20.08271 AU
retrograde	3370 Sep 29 13:39	24°II57'18		retrograde	3377 Oct 30 06:21	25°☿07'35	
opposition	3370 Dec 14 21:25	22°II56'01	0°01'18	opposition	3378 Jan 13 08:26	23°☿05'35	0°26'13
min. Earth dist.	3370 Dec 14 19:10	22°II56'15	18.50123 AU	min. Earth dist.	3378 Jan 13 17:33	23°☿04'36	18.04916 AU
direct	3371 Feb 27 13:50	20°II56'31		direct	3378 Mar 28 23:57	21°☿03'42	
conjunction	3371 Jun 15 01:45	24°II59'50	0°02'53	conjunction	3378 Jul 16 09:18	25°☿17'21	0°25'04
minimum elong	3371 Jun 15 01:44	24°II59'50	0°02'53	minimum elong	3378 Jul 16 09:18	25°☿17'21	0°25'04
behind sun begin	3371 Jun 14 19:01	24°II58'53		max. Earth dist.	3378 Jul 15 21:53	25°☿15'39	20.01569 AU
behind sun end	3371 Jun 15 08:27	25°II00'47		retrograde	3378 Nov 04 01:36	29°☿34'07	
max. Earth dist.	3371 Jun 15 02:17	24°II59'53	20.47014 AU	opposition	3379 Jan 17 22:56	27°☿31'59	0°29'26
retrograde	3371 Oct 04 02:53	29°II10'16		min. Earth dist.	3379 Jan 18 08:39	27°☿30'56	17.98193 AU
opposition	3371 Dec 19 07:24	27°II08'50	0°04'58	direct	3379 Apr 02 16:34	25°☿29'42	
min. Earth dist.	3371 Dec 19 07:22	27°II08'50	18.43853 AU	conjunction	3379 Jul 21 07:12	29°☿44'53	0°27'54
direct	3372 Mar 02 22:34	25°II08'58		minimum elong	3379 Jul 21 07:12	29°☿44'53	0°27'54
conjunction	3372 Jun 18 17:11	29°II13'37	0°06'10	max. Earth dist.	3379 Jul 20 17:41	29°☿42'51	19.94837 AU
minimum elong	3372 Jun 18 17:11	29°II13'37	0°06'10		3379 Jul 25 11:54	0°♂	
behind sun begin	3372 Jun 18 10:49	29°II12'42		retrograde	3379 Nov 08 19:35	4°♂02'28	
behind sun end	3372 Jun 18 23:34	29°II14'31		opposition	3380 Jan 22 14:11	2°♂00'13	0°32'30
max. Earth dist.	3372 Jun 18 17:12	29°II13'37	20.40710 AU	min. Earth dist.	3380 Jan 23 02:23	1°♂58'54	17.91487 AU
	3372 Jul 01 23:25	0°☿			3380 Mar 27 17:41	30°♂☿	
retrograde	3372 Oct 07 18:30	3°☿24'55		direct	3380 Apr 06 08:08	29°☿57'31	
opposition	3372 Dec 22 17:55	1°☿23'21	0°08'37		3380 Apr 15 23:33	0°♂	
min. Earth dist.	3372 Dec 22 18:15	1°☿23'19	18.37515 AU	conjunction	3380 Jul 25 05:50	4°♂14'14	0°30'34
	3373 Jan 28 03:15	30°♂II		minimum elong	3380 Jul 25 05:50	4°♂14'14	0°30'34
direct	3373 Mar 07 09:28	29°II23'11		max. Earth dist.	3380 Jul 24 14:41	4°♂11'57	19.88177 AU
	3373 Apr 14 01:35	0°☿		retrograde	3380 Nov 12 15:42	8°♂32'38	
conjunction	3373 Jun 23 09:16	3°☿29'12	0°09'27	opposition	3381 Jan 26 05:59	6°♂30'13	0°35'24
minimum elong	3373 Jun 23 09:15	3°☿29'12	0°09'26	min. Earth dist.	3381 Jan 26 18:35	6°♂28'52	17.84887 AU
behind sun begin	3373 Jun 23 03:40	3°☿28'24		direct	3381 Apr 11 02:54	4°♂27'07	
behind sun end	3373 Jun 23 14:51	3°☿30'00		conjunction	3381 Jul 30 05:09	8°♂45'19	0°33'04
max. Earth dist.	3373 Jun 23 06:46	3°☿28'52	20.34350 AU	minimum elong	3381 Jul 30 05:08	8°♂45'19	0°33'05
retrograde	3373 Oct 12 09:27	7°☿41'26		max. Earth dist.	3381 Jul 29 12:39	8°♂42'50	19.81642 AU
opposition	3373 Dec 27 05:12	5°☿39'46	0°12'15	retrograde	3381 Nov 17 10:33	13°♂04'29	
min. Earth dist.	3373 Dec 27 07:50	5°☿39'29	18.31135 AU	opposition	3382 Jan 30 22:38	11°♂01'57	0°38'05
direct	3374 Mar 11 19:46	3°☿39'15		min. Earth dist.	3382 Jan 31 13:21	11°♂00'22	17.78454 AU
conjunction	3374 Jun 28 02:38	7°☿46'45	0°12'42	direct	3382 Apr 15 20:01	8°♂58'25	
minimum elong	3374 Jun 28 02:38	7°☿46'45	0°12'42	max. Earth dist.	3382 Aug 03 11:02	13°♂15'21	19.75326 AU
behind sun begin	3374 Jun 27 22:28	7°☿46'09		conjunction	3382 Aug 04 05:14	13°♂18'06	0°35'23
behind sun end	3374 Jun 28 06:47	7°☿47'21		minimum elong	3382 Aug 04 05:14	13°♂18'06	0°35'23
max. Earth dist.	3374 Jun 27 23:19	7°☿46'17	20.27948 AU		3382 Sep 01 20:47	15°♂	
retrograde	3374 Oct 17 02:24	11°☿59'53		retrograde	3382 Nov 22 07:56	17°♂38'00	
opposition	3374 Dec 31 16:49	9°☿58'09	0°15'51	opposition	3383 Feb 04 15:42	15°♂35'20	0°40'33
min. Earth dist.	3374 Dec 31 20:03	9°☿57'48	18.24698 AU	min. Earth dist.	3383 Feb 05 06:44	15°♂33'43	17.72274 AU
direct	3375 Mar 16 08:04	7°☿57'20			3383 Feb 18 09:37	15°♂♂	
conjunction	3375 Jul 02 20:52	12°☿06'20	0°15'54	direct	3383 Apr 20 16:35	13°♂31'24	
minimum elong	3375 Jul 02 20:53	12°☿06'20	0°15'53		3383 Jun 18 22:48	15°♂	
max. Earth dist.	3375 Jul 02 14:54	12°☿05'28	20.21472 AU	max. Earth dist.	3383 Aug 08 11:14	17°♂49'40	19.69283 AU
retrograde	3375 Oct 21 18:46	16°☿20'25		conjunction	3383 Aug 09 06:03	17°♂52'32	0°37'29
opposition	3376 Jan 05 05:23	14°☿18'36	0°19'24	minimum elong	3383 Aug 09 06:03	17°♂52'32	0°37'29
min. Earth dist.	3376 Jan 05 11:13	14°☿17'59	18.18191 AU	retrograde	3383 Nov 27 04:18	22°♂13'07	
direct	3376 Mar 19 19:54	12°☿17'27		opposition	3384 Feb 09 09:45	20°♂10'22	0°42'47

min. Earth dist.	3384 Feb 10 02:24	20°08'33	17.66408 AU	min. Earth dist.	3392 Mar 18 07:02	27°04'50	17.35036 AU
direct	3384 Apr 24 11:20	18°06'03		direct	3392 Jun 01 04:38	25°03'06	
max. Earth dist.	3384 Aug 12 10:44	22°02'56	19.63606 AU		3392 Sep 19 01:40	0°00'	
				max. Earth dist.	3392 Sep 20 10:09	0°05'05	19.33928 AU
conjunction	3384 Aug 13 07:09	22°02'33	0°39'21				
minimum elong	3384 Aug 13 07:09	22°02'33	0°39'21	conjunction	3392 Sep 21 10:58	0°08'58	0°44'31
retrograde	3384 Dec 01 02:45	26°04'48		minimum elong	3392 Sep 21 10:58	0°08'58	0°44'30
opposition	3385 Feb 13 04:22	24°04'58	0°44'44	retrograde	3393 Jan 07 23:28	4°03'16	
min. Earth dist.	3385 Feb 13 21:05	24°04'59	17.60940 AU	opposition	3393 Mar 22 10:30	2°03'38	0°49'18
direct	3385 Apr 29 08:35	22°04'19		min. Earth dist.	3393 Mar 23 07:44	2°02'19	17.33021 AU
				direct	3393 Jun 06 06:41	0°02'32	
conjunction	3385 Aug 18 09:09	27°06'11	0°40'58				
minimum elong	3385 Aug 18 09:09	27°06'11	0°40'57	conjunction	3393 Sep 26 15:26	4°05'55	0°43'49
max. Earth dist.	3385 Aug 17 12:49	27°03'04	19.58339 AU	minimum elong	3393 Sep 26 15:26	4°05'55	0°43'48
	3385 Oct 08 15:06	0°00'		max. Earth dist.	3393 Sep 25 15:12	4°02'07	19.32136 AU
retrograde	3385 Dec 06 01:07	1°02'01		retrograde	3394 Jan 13 00:39	9°02'13	
	3386 Feb 04 12:12	30°00'		opposition	3394 Mar 27 10:38	7°01'37	0°48'21
opposition	3386 Feb 17 23:42	29°02'51	0°46'25	min. Earth dist.	3394 Mar 28 07:09	7°01'52	17.31449 AU
min. Earth dist.	3386 Feb 18 17:36	29°02'31	17.55902 AU	direct	3394 Jun 11 10:59	5°01'24	
direct	3386 May 04 04:53	27°02'14					
	3386 Jul 25 05:10	0°00'		conjunction	3394 Oct 01 19:45	9°04'31	0°42'48
				minimum elong	3394 Oct 01 19:45	9°04'31	0°42'48
conjunction	3386 Aug 23 11:37	1°04'52	0°42'20	max. Earth dist.	3394 Sep 30 19:18	9°03'19	19.30804 AU
minimum elong	3386 Aug 23 11:37	1°04'52	0°42'20	retrograde	3395 Jan 17 23:41	14°07'23	
max. Earth dist.	3386 Aug 22 13:31	1°04'59	19.53538 AU	opposition	3395 Apr 01 11:22	12°04'49	0°47'03
retrograde	3386 Dec 11 00:26	6°07'48		min. Earth dist.	3395 Apr 02 08:32	12°02'30	17.30376 AU
opposition	3387 Feb 22 19:46	4°04'56	0°47'48	direct	3395 Jun 16 13:35	9°05'30	
min. Earth dist.	3387 Feb 23 13:52	4°02'57	17.51339 AU				
direct	3387 May 09 02:45	1°05'45		conjunction	3395 Oct 06 23:37	14°03'28	0°41'29
				minimum elong	3395 Oct 06 23:37	14°03'28	0°41'28
conjunction	3387 Aug 28 14:40	6°06'09	0°43'26	max. Earth dist.	3395 Oct 05 23:53	14°02'44	19.29997 AU
minimum elong	3387 Aug 28 14:40	6°06'09	0°43'26	retrograde	3396 Jan 23 00:56	18°05'33	
max. Earth dist.	3387 Aug 27 17:06	6°02'49	19.49197 AU	opposition	3396 Apr 05 12:15	16°02'00	0°45'26
retrograde	3387 Dec 16 00:20	10°04'03		min. Earth dist.	3396 Apr 06 08:00	16°04'51	17.29833 AU
opposition	3388 Feb 27 16:36	8°04'15	0°48'53	direct	3396 Jun 20 18:36	14°04'39	
min. Earth dist.	3388 Feb 28 11:29	8°04'10	17.47228 AU	max. Earth dist.	3396 Oct 10 04:27	19°01'40	19.29739 AU
direct	3388 May 13 01:03	6°04'53					
				conjunction	3396 Oct 11 03:16	19°01'41	0°39'53
conjunction	3388 Sep 01 18:03	11°08'24	0°44'15	minimum elong	3396 Oct 11 03:16	19°01'41	0°39'53
minimum elong	3388 Sep 01 18:03	11°08'24	0°44'15	retrograde	3397 Jan 26 23:53	23°04'32	
max. Earth dist.	3388 Aug 31 18:45	11°04'47	19.45316 AU	opposition	3397 Apr 10 13:23	21°03'02	0°43'29
retrograde	3388 Dec 19 23:37	15°03'14		min. Earth dist.	3397 Apr 11 09:28	21°03'50	17.29879 AU
opposition	3389 Mar 03 14:04	13°02'00	0°49'38	direct	3397 Jun 25 20:59	19°03'38	
min. Earth dist.	3389 Mar 04 09:28	13°02'52	17.43577 AU	max. Earth dist.	3397 Oct 15 08:17	24°01'07	19.30098 AU
direct	3389 May 18 00:08	11°02'27					
				conjunction	3397 Oct 16 06:28	24°04'37	0°38'00
conjunction	3389 Sep 06 22:02	15°02'02	0°44'46	minimum elong	3397 Oct 16 06:28	24°04'37	0°38'00
minimum elong	3389 Sep 06 22:02	15°02'01	0°44'47	retrograde	3398 Feb 01 01:23	28°02'10	
max. Earth dist.	3389 Sep 05 23:19	15°04'30	19.41865 AU	opposition	3398 Apr 15 14:39	26°02'44	0°41'14
retrograde	3389 Dec 25 00:22	20°01'45		min. Earth dist.	3398 Apr 16 08:48	26°02'45	17.30545 AU
opposition	3390 Mar 08 12:18	18°03'02	0°50'04	direct	3398 Jul 01 01:56	24°01'22	
min. Earth dist.	3390 Mar 09 08:10	18°01'51	17.40325 AU				
direct	3390 May 23 00:52	16°07'21		conjunction	3398 Oct 21 09:15	28°05'10	0°35'51
max. Earth dist.	3390 Sep 11 01:50	20°03'00	19.38812 AU	minimum elong	3398 Oct 21 09:16	28°05'10	0°35'51
				max. Earth dist.	3398 Oct 20 12:54	28°04'57	19.31085 AU
conjunction	3390 Sep 12 02:13	20°03'49	0°45'00		3398 Nov 08 17:48	0°00'	
minimum elong	3390 Sep 12 02:13	20°03'49	0°44'59	retrograde	3399 Feb 06 00:09	3°01'42	
retrograde	3390 Dec 29 23:24	25°00'49		opposition	3399 Apr 20 16:13	1°01'20	0°38'43
opposition	3391 Mar 13 11:07	22°05'07	0°50'10	min. Earth dist.	3399 Apr 21 10:14	1°01'04	17.31862 AU
min. Earth dist.	3391 Mar 14 07:45	22°05'52	17.37483 AU		3399 May 20 03:22	30°00'	
direct	3391 May 28 01:52	20°05'17		direct	3399 Jul 06 03:46	29°05'45	
max. Earth dist.	3391 Sep 16 06:56	25°01'49	19.36166 AU		3399 Aug 21 01:21	0°00'	
conjunction	3391 Sep 17 06:42	25°02'32	0°44'55	conjunction	3399 Oct 26 11:26	3°03'14	0°33'29
minimum elong	3391 Sep 17 06:42	25°02'32	0°44'55	minimum elong	3399 Oct 26 11:26	3°03'14	0°33'29
retrograde	3392 Jan 04 00:25	29°04'43		max. Earth dist.	3399 Oct 25 15:41	3°03'47	19.32745 AU
opposition	3392 Mar 17 10:35	27°04'04	0°49'54	retrograde	3400 Feb 11 01:32	7°05'59	

opposition	3400 Apr 25 17:41	5° <del>M</del> 57'48	0°35'56	min. Earth dist.	3407 May 30 09:30	8° <del>7</del> 52'57	17.61434 AU
min. Earth dist.	3400 Apr 26 09:29	5° <del>M</del> 56'06	17.33840 AU	direct	3407 Aug 15 05:38	6° <del>7</del> 49'27	
direct	3400 Jul 11 08:11	3° <del>M</del> 51'42					
				conjunction	3407 Dec 04 05:41	11° <del>7</del> 13'56	0°08'14
conjunction	3400 Oct 31 13:07	8° <del>M</del> 22'45	0°30'52	minimum elong	3407 Dec 04 05:41	11° <del>7</del> 13'56	0°08'14
minimum elong	3400 Oct 31 13:07	8° <del>M</del> 22'45	0°30'52	behind sun begin	3407 Dec 03 23:49	11° <del>7</del> 13'02	
max. Earth dist.	3400 Oct 30 19:48	8° <del>M</del> 20'01	19.35039 AU	behind sun end	3407 Dec 04 11:33	11° <del>7</del> 14'50	
retrograde	3401 Feb 16 00:04	12° <del>M</del> 45'01		max. Earth dist.	3407 Dec 03 22:01	11° <del>7</del> 12'46	19.64052 AU
opposition	3401 Apr 30 19:20	10° <del>M</del> 43'02	0°32'54	retrograde	3408 Mar 20 07:13	15° <del>7</del> 31'11	
min. Earth dist.	3401 May 01 10:46	10° <del>M</del> 41'22	17.36426 AU	opposition	3408 Jun 03 02:23	13° <del>7</del> 30'21	0°07'09
direct	3401 Jul 16 10:06	8° <del>M</del> 37'09		min. Earth dist.	3408 Jun 03 08:17	13° <del>7</del> 29'43	17.66719 AU
				direct	3408 Aug 19 05:31	11° <del>7</del> 26'20	
conjunction	3401 Nov 05 14:10	13° <del>M</del> 07'37	0°28'04				
minimum elong	3401 Nov 05 14:10	13° <del>M</del> 07'38	0°28'04	conjunction	3408 Dec 08 01:16	15° <del>7</del> 49'29	0°04'40
max. Earth dist.	3401 Nov 04 21:15	13° <del>M</del> 04'58	19.37920 AU	minimum elong	3408 Dec 08 01:15	15° <del>7</del> 49'29	0°04'41
	3401 Dec 06 04:38	15° <del>M</del>		behind sun begin	3408 Dec 07 18:47	15° <del>7</del> 48'31	
retrograde	3402 Feb 21 00:20	17° <del>M</del> 29'22		behind sun end	3408 Dec 08 07:42	15° <del>7</del> 50'28	
opposition	3402 May 05 20:45	15° <del>M</del> 27'34	0°29'40	max. Earth dist.	3408 Dec 07 19:58	15° <del>7</del> 48'42	19.69465 AU
min. Earth dist.	3402 May 06 10:14	15° <del>M</del> 26'07	17.39571 AU	retrograde	3409 Mar 25 03:12	20° <del>7</del> 05'49	
	3402 May 16 15:24	15° <del>R</del> <del>M</del>		opposition	3409 Jun 08 01:53	18° <del>7</del> 05'04	0°03'09
direct	3402 Jul 21 14:50	13° <del>M</del> 21'56		min. Earth dist.	3409 Jun 08 05:46	18° <del>7</del> 04'40	17.72237 AU
	3402 Sep 22 09:18	15° <del>M</del>		direct	3409 Aug 24 07:09	16° <del>7</del> 01'20	
conjunction	3402 Nov 10 14:46	17° <del>M</del> 51'43	0°25'05	conjunction	3409 Dec 12 19:42	20° <del>7</del> 23'04	0°01'03
minimum elong	3402 Nov 10 14:46	17° <del>M</del> 51'43	0°25'04	minimum elong	3409 Dec 12 19:42	20° <del>7</del> 23'04	0°01'03
max. Earth dist.	3402 Nov 10 00:29	17° <del>M</del> 49'28	19.41319 AU	behind sun begin	3409 Dec 12 13:07	20° <del>7</del> 22'04	
retrograde	3403 Feb 25 21:56	22° <del>M</del> 12'51		behind sun end	3409 Dec 13 02:18	20° <del>7</del> 24'04	
opposition	3403 May 10 22:24	20° <del>M</del> 11'15	0°26'14	max. Earth dist.	3409 Dec 12 15:44	20° <del>7</del> 22'30	19.75110 AU
min. Earth dist.	3403 May 11 11:14	20° <del>M</del> 09'53	17.43197 AU	desc. node	3410 Mar 27 15:38	24° <del>7</del> 38'20	
direct	3403 Jul 26 17:32	18° <del>M</del> 05'54		retrograde	3410 Mar 29 21:13	24° <del>7</del> 38'28	
				opposition	3410 Jun 13 00:51	22° <del>7</del> 37'48	0°00'-49
conjunction	3403 Nov 15 14:22	22° <del>M</del> 34'50	0°21'56	min. Earth dist.	3410 Jun 13 03:36	22° <del>7</del> 37'31	17.78020 AU
minimum elong	3403 Nov 15 14:22	22° <del>M</del> 34'50	0°21'56	direct	3410 Aug 29 05:26	20° <del>7</del> 34'20	
max. Earth dist.	3403 Nov 15 00:28	22° <del>M</del> 32'40	19.45174 AU				
retrograde	3404 Mar 01 20:54	26° <del>M</del> 55'20		conjunction	3410 Dec 17 13:15	24° <del>7</del> 54'36	0°-2'-36
opposition	3404 May 14 23:48	24° <del>M</del> 53'54	0°22'38	minimum elong	3410 Dec 17 13:15	24° <del>7</del> 54'36	0°02'37
min. Earth dist.	3404 May 15 10:53	24° <del>M</del> 52'43	17.47260 AU	behind sun begin	3410 Dec 17 06:40	24° <del>7</del> 53'37	
direct	3404 Jul 30 21:52	22° <del>M</del> 48'49		behind sun end	3410 Dec 17 19:49	24° <del>7</del> 55'35	
				max. Earth dist.	3410 Dec 17 11:40	24° <del>7</del> 54'25	19.81032 AU
conjunction	3404 Nov 19 13:32	27° <del>M</del> 16'49	0°18'38	retrograde	3411 Apr 03 16:08	29° <del>7</del> 09'03	
minimum elong	3404 Nov 19 13:32	27° <del>M</del> 16'49	0°18'39	opposition	3411 Jun 17 23:12	27° <del>7</del> 08'29	0°-4'-46
max. Earth dist.	3404 Nov 19 02:12	27° <del>M</del> 15'03	19.49426 AU	min. Earth dist.	3411 Jun 17 23:18	27° <del>7</del> 08'29	17.84072 AU
	3405 Jan 05 03:34	0° <del>7</del>		direct	3411 Sep 03 05:35	25° <del>7</del> 05'20	
retrograde	3405 Mar 06 17:33	1° <del>7</del> 36'33					
	3405 May 10 07:11	30° <del>R</del> <del>M</del>		conjunction	3411 Dec 22 05:42	29° <del>7</del> 24'06	0°-6'-7
opposition	3405 May 20 00:53	29° <del>M</del> 35'18	0°18'54	minimum elong	3411 Dec 22 05:41	29° <del>7</del> 24'06	0°06'08
min. Earth dist.	3405 May 20 11:00	29° <del>M</del> 34'14	17.51677 AU	behind sun begin	3411 Dec 21 23:26	29° <del>7</del> 23'10	
direct	3405 Aug 05 00:51	27° <del>M</del> 30'31		behind sun end	3411 Dec 22 11:56	29° <del>7</del> 25'02	
	3405 Oct 23 04:20	0° <del>7</del>		max. Earth dist.	3411 Dec 22 05:57	29° <del>7</del> 24'08	19.87221 AU
					3411 Dec 31 23:01	0° <del>7</del>	
conjunction	3405 Nov 24 11:48	1° <del>7</del> 57'26	0°15'15	retrograde	3412 Apr 07 08:53	3° <del>7</del> 37'38	
minimum elong	3405 Nov 24 11:48	1° <del>7</del> 57'26	0°15'14	opposition	3412 Jun 21 20:59	1° <del>7</del> 37'11	0°-8'-39
behind sun begin	3405 Nov 24 09:34	1° <del>7</del> 57'06		min. Earth dist.	3412 Jun 21 19:57	1° <del>7</del> 37'18	17.90408 AU
behind sun end	3405 Nov 24 14:01	1° <del>7</del> 57'47			3412 Aug 05 19:51	30° <del>R</del> <del>7</del>	
max. Earth dist.	3405 Nov 24 00:51	1° <del>7</del> 55'44	19.54014 AU	direct	3412 Sep 07 02:09	29° <del>7</del> 34'22	
retrograde	3406 Mar 11 14:56	6° <del>7</del> 16'24			3412 Oct 08 17:25	0° <del>7</del>	
opposition	3406 May 25 01:48	4° <del>7</del> 15'18	0°15'03				
min. Earth dist.	3406 May 25 10:28	4° <del>7</del> 14'23	17.56422 AU	conjunction	3412 Dec 25 21:21	3° <del>7</del> 51'39	0°-9'-33
direct	3406 Aug 10 03:12	2° <del>7</del> 10'46		minimum elong	3412 Dec 25 21:21	3° <del>7</del> 51'39	0°09'35
				behind sun begin	3412 Dec 25 15:53	3° <del>7</del> 50'49	
conjunction	3406 Nov 29 09:14	6° <del>7</del> 36'32	0°11'46	behind sun end	3412 Dec 26 02:49	3° <del>7</del> 52'28	
minimum elong	3406 Nov 29 09:14	6° <del>7</del> 36'32	0°11'47	max. Earth dist.	3412 Dec 25 23:41	3° <del>7</del> 51'59	19.93689 AU
behind sun begin	3406 Nov 29 04:33	6° <del>7</del> 35'49		retrograde	3413 Apr 12 02:28	8° <del>7</del> 03'15	
behind sun end	3406 Nov 29 13:54	6° <del>7</del> 37'15		opposition	3413 Jun 26 17:52	6° <del>7</del> 03'58	0°-12'-26
max. Earth dist.	3406 Nov 29 00:47	6° <del>7</del> 35'14	19.58902 AU	min. Earth dist.	3413 Jun 26 13:59	6° <del>7</del> 04'22	17.96986 AU
retrograde	3407 Mar 16 11:27	10° <del>7</del> 54'39		direct	3413 Sep 12 00:27	4° <del>7</del> 01'32	
opposition	3407 May 30 02:23	8° <del>7</del> 53'42	0°11'07				

conjunction	3413 Dec 30 12:08	8°☾17'20	0°-12'-55	direct	3421 Oct 17 19:42	8°≈37'17	
minimum elong	3413 Dec 30 12:08	8°☾17'20	0°12'56				
behind sun begin	3413 Dec 30 08:02	8°☾16'43		conjunction	3422 Feb 02 06:41	12°≈41'36	0°-35'-7
behind sun end	3413 Dec 30 16:15	8°☾17'57		minimum elong	3422 Feb 02 06:41	12°≈41'36	0°35'08
max. Earth dist.	3413 Dec 30 16:31	8°☾17'59	20.00376 AU	max. Earth dist.	3422 Feb 02 22:38	12°≈43'58	20.53859 AU
retrograde	3414 Apr 16 18:27	12°☾29'04			3422 Mar 15 09:56	15°≈	
opposition	3414 Jul 01 14:27	10°☾28'57	0°-16'-8	retrograde	3422 May 21 07:26	16°≈47'00	
min. Earth dist.	3414 Jul 01 09:38	10°☾29'27	18.03774 AU		3422 Aug 01 11:17	15°≈	
direct	3414 Sep 16 19:18	8°☾26'57		opposition	3422 Aug 06 10:35	14°≈48'00	0°-40'-1
				min. Earth dist.	3422 Aug 05 19:07	14°≈49'33	18.56798 AU
conjunction	3415 Jan 04 01:55	12°☾41'14	0°-16'-11	direct	3422 Oct 22 08:42	12°≈49'01	
minimum elong	3415 Jan 04 01:55	12°☾41'14	0°16'12		3423 Jan 04 22:40	15°≈	
behind sun begin	3415 Jan 04 01:29	12°☾41'10					
behind sun end	3415 Jan 04 02:21	12°☾41'18		conjunction	3423 Feb 06 14:45	16°≈51'59	0°-37'-6
max. Earth dist.	3415 Jan 04 08:03	12°☾42'10	20.07244 AU	minimum elong	3423 Feb 06 14:45	16°≈51'59	0°37'07
retrograde	3415 Apr 21 11:04	16°☾52'07		max. Earth dist.	3423 Feb 07 07:02	16°≈54'23	20.59663 AU
opposition	3415 Jul 06 10:14	14°☾52'12	0°-19'-42	retrograde	3423 May 25 19:35	20°≈56'42	
min. Earth dist.	3415 Jul 06 02:36	14°☾52'59	18.10692 AU	min. Earth dist.	3423 Aug 10 07:35	18°≈59'26	18.62479 AU
direct	3415 Sep 21 15:54	12°☾50'37		opposition	3423 Aug 11 00:54	18°≈57'41	0°-42'-5
				direct	3423 Oct 26 21:54	16°≈58'57	
conjunction	3416 Jan 08 15:03	17°☾03'27	0°-19'-21				
minimum elong	3416 Jan 08 15:03	17°☾03'27	0°19'21	conjunction	3424 Feb 10 22:25	21°≈00'39	0°-38'-52
max. Earth dist.	3416 Jan 08 23:16	17°☾04'41	20.14195 AU	minimum elong	3424 Feb 10 22:25	21°≈00'39	0°38'53
retrograde	3416 Apr 25 01:46	21°☾13'28		max. Earth dist.	3424 Feb 11 16:41	21°≈03'21	20.65213 AU
opposition	3416 Jul 10 05:22	19°☾13'45	0°-23'-8	retrograde	3424 May 29 04:30	25°≈04'42	
min. Earth dist.	3416 Jul 09 21:13	19°☾14'35	18.17671 AU	opposition	3424 Aug 14 14:25	23°≈05'42	0°-43'-55
direct	3416 Sep 25 09:34	17°☾12'37		min. Earth dist.	3424 Aug 13 20:55	23°≈07'28	18.67924 AU
				direct	3424 Oct 30 09:21	21°≈07'13	
conjunction	3417 Jan 12 03:24	21°☾23'58	0°-22'-22				
minimum elong	3417 Jan 12 03:24	21°☾23'58	0°22'23	conjunction	3425 Feb 14 05:22	25°≈07'42	0°-40'-26
max. Earth dist.	3417 Jan 12 12:45	21°☾25'23	20.21174 AU	minimum elong	3425 Feb 14 05:22	25°≈07'42	0°40'27
retrograde	3417 Apr 29 17:13	25°☾33'11		max. Earth dist.	3425 Feb 14 23:53	25°≈10'25	20.70554 AU
opposition	3417 Jul 14 23:50	23°☾33'38	0°-26'-25	retrograde	3425 Jun 02 15:37	29°≈11'09	
min. Earth dist.	3417 Jul 14 13:08	23°☾34'44	18.24626 AU	min. Earth dist.	3425 Aug 18 08:01	27°≈14'07	18.73169 AU
direct	3417 Sep 30 04:15	21°☾32'56		opposition	3425 Aug 19 03:19	27°≈12'10	0°-45'-31
				direct	3425 Nov 03 20:18	25°≈13'55	
conjunction	3418 Jan 16 14:58	25°☾42'51	0°-25'-15				
minimum elong	3418 Jan 16 14:58	25°☾42'51	0°25'17	conjunction	3426 Feb 18 11:49	29°≈13'17	0°-41'-47
max. Earth dist.	3418 Jan 17 02:19	25°☾44'33	20.28080 AU	minimum elong	3426 Feb 18 11:49	29°≈13'17	0°41'47
retrograde	3418 May 04 06:25	29°☾51'16		max. Earth dist.	3426 Feb 19 08:23	29°≈16'18	20.75683 AU
opposition	3418 Jul 19 17:52	27°☾51'53	0°-29'-32		3426 Mar 03 19:58	0°≈	
min. Earth dist.	3418 Jul 19 06:51	27°☾53'00	18.31485 AU	retrograde	3426 Jun 07 00:16	3°≈16'12	
direct	3418 Oct 04 20:52	25°☾51'36		opposition	3426 Aug 23 15:44	1°≈17'15	0°-46'-52
				min. Earth dist.	3426 Aug 22 20:04	1°≈19'14	18.78196 AU
conjunction	3419 Jan 21 01:53	0°≈00'04	0°-27'-59		3426 Sep 27 14:55	30°≈	
minimum elong	3419 Jan 21 01:53	0°≈00'04	0°28'00	direct	3426 Nov 08 06:46	29°≈19'17	
	3419 Jan 21 01:27	0°≈			3426 Dec 18 13:31	0°≈	
max. Earth dist.	3419 Jan 21 13:56	0°≈01'52	20.34869 AU				
retrograde	3419 May 08 20:35	4°≈07'42		conjunction	3427 Feb 22 17:52	3°≈17'35	0°-42'-54
opposition	3419 Jul 24 11:01	2°≈08'28	0°-32'-28	minimum elong	3427 Feb 22 17:52	3°≈17'35	0°42'55
min. Earth dist.	3419 Jul 23 21:44	2°≈09'49	18.38189 AU	max. Earth dist.	3427 Feb 23 14:29	3°≈20'36	20.80603 AU
direct	3419 Oct 09 13:45	0°≈08'33		retrograde	3427 Jun 11 10:52	7°≈20'02	
				min. Earth dist.	3427 Aug 27 06:12	5°≈23'15	18.83003 AU
conjunction	3420 Jan 25 12:09	4°≈15'37	0°-30'-33	opposition	3427 Aug 28 03:19	5°≈21'08	0°-47'-59
minimum elong	3420 Jan 25 12:09	4°≈15'37	0°30'34	direct	3427 Nov 12 15:42	3°≈23'25	
max. Earth dist.	3420 Jan 26 02:00	4°≈17'41	20.41455 AU				
retrograde	3420 May 12 08:18	8°≈22'29		conjunction	3428 Feb 26 23:41	7°≈20'46	0°-43'-49
opposition	3420 Jul 28 03:38	6°≈23'22	0°-35'-11	minimum elong	3428 Feb 26 23:41	7°≈20'46	0°43'49
min. Earth dist.	3420 Jul 27 14:16	6°≈24'43	18.44661 AU	max. Earth dist.	3428 Feb 27 22:02	7°≈24'01	20.85268 AU
direct	3420 Oct 13 04:32	4°≈23'48		retrograde	3428 Jun 14 19:04	11°≈22'47	
				opposition	3428 Aug 31 14:30	9°≈23'57	0°-48'-52
conjunction	3421 Jan 28 21:42	8°≈29'28	0°-32'-56	min. Earth dist.	3428 Aug 30 17:14	9°≈26'05	18.87525 AU
minimum elong	3421 Jan 28 21:42	8°≈29'28	0°32'56	direct	3428 Nov 16 01:06	7°≈26'31	
max. Earth dist.	3421 Jan 29 11:50	8°≈31'34	20.47797 AU				
retrograde	3421 May 16 21:21	12°≈35'36		conjunction	3429 Mar 02 05:01	11°≈22'59	0°-44'-30
opposition	3421 Aug 01 19:21	10°≈36'33	0°-37'-43	minimum elong	3429 Mar 02 05:01	11°≈22'59	0°44'31
min. Earth dist.	3421 Aug 01 04:00	10°≈38'06	18.50868 AU	max. Earth dist.	3429 Mar 03 03:06	11°≈26'11	20.89641 AU

retrograde	3429 Jun 19 05:23	15° <del>♂</del> 24'41		retrograde	3437 Jul 22 00:13	17° <del>♂</del> 20'01	
min. Earth dist.	3429 Sep 04 02:50	13° <del>♂</del> 28'08	18.91737 AU	min. Earth dist.	3437 Oct 07 03:32	15° <del>♂</del> 23'05	19.08456 AU
opposition	3429 Sep 05 01:10	13° <del>♂</del> 25'54	0°-49'-29	opposition	3437 Oct 08 00:06	15° <del>♂</del> 21'01	0°-45'-53
direct	3429 Nov 20 09:03	11° <del>♂</del> 28'43		direct	3437 Dec 22 14:30	13° <del>♂</del> 24'47	
conjunction	3430 Mar 06 10:22	15° <del>♂</del> 24'24	0°-44'-58	conjunction	3438 Apr 07 02:31	17° <del>♂</del> 16'57	0°-40'-55
minimum elong	3430 Mar 06 10:22	15° <del>♂</del> 24'24	0°45'00	minimum elong	3438 Apr 07 02:31	17° <del>♂</del> 16'57	0°40'55
max. Earth dist.	3430 Mar 07 09:56	15° <del>♂</del> 27'49	20.93668 AU	max. Earth dist.	3438 Apr 08 00:51	17° <del>♂</del> 20'08	21.08398 AU
retrograde	3430 Jun 23 13:15	19° <del>♂</del> 25'48		retrograde	3438 Jul 26 07:57	21° <del>♂</del> 17'49	
opposition	3430 Sep 09 11:26	17° <del>♂</del> 27'06	0°-49'-53	min. Earth dist.	3438 Oct 11 11:12	19° <del>♂</del> 20'45	19.08318 AU
min. Earth dist.	3430 Sep 08 13:12	17° <del>♂</del> 29'19	18.95576 AU	opposition	3438 Oct 12 07:22	19° <del>♂</del> 18'43	0°-44'-24
direct	3430 Nov 24 17:05	15° <del>♂</del> 30'11		direct	3438 Dec 26 20:38	17° <del>♂</del> 22'27	
conjunction	3431 Mar 10 15:24	19° <del>♂</del> 25'08	0°-45'-13	conjunction	3439 Apr 11 07:39	21° <del>♂</del> 14'34	0°-39'-28
minimum elong	3431 Mar 10 15:24	19° <del>♂</del> 25'08	0°45'14	minimum elong	3439 Apr 11 07:39	21° <del>♂</del> 14'34	0°39'30
max. Earth dist.	3431 Mar 11 14:18	19° <del>♂</del> 28'27	20.97307 AU	max. Earth dist.	3439 Apr 12 04:32	21° <del>♂</del> 17'33	21.08068 AU
retrograde	3431 Jun 27 23:19	23° <del>♂</del> 26'19		retrograde	3439 Jul 30 15:49	25° <del>♂</del> 15'37	
opposition	3431 Sep 13 21:15	21° <del>♂</del> 27'39	0°-50'-1	opposition	3439 Oct 16 14:28	23° <del>♂</del> 16'24	0°-42'-42
min. Earth dist.	3431 Sep 12 22:32	21° <del>♂</del> 29'55	18.98998 AU	min. Earth dist.	3439 Oct 15 18:47	23° <del>♂</del> 18'22	19.07793 AU
direct	3431 Nov 29 00:28	19° <del>♂</del> 30'57		direct	3439 Dec 31 01:10	21° <del>♂</del> 20'05	
conjunction	3432 Mar 13 20:36	23° <del>♂</del> 25'18	0°-45'-15	conjunction	3440 Apr 14 13:08	25° <del>♂</del> 12'15	0°-37'-50
minimum elong	3432 Mar 13 20:36	23° <del>♂</del> 25'18	0°45'17	minimum elong	3440 Apr 14 13:08	25° <del>♂</del> 12'15	0°37'50
max. Earth dist.	3432 Mar 14 20:32	23° <del>♂</del> 28'45	21.00480 AU	max. Earth dist.	3440 Apr 15 10:34	25° <del>♂</del> 15'18	21.07341 AU
retrograde	3432 Jul 01 06:55	27° <del>♂</del> 26'18		retrograde	3440 Aug 02 23:23	29° <del>♂</del> 13'31	
min. Earth dist.	3432 Sep 16 08:17	25° <del>♂</del> 29'54	19.01921 AU	opposition	3440 Oct 19 21:17	27° <del>♂</del> 14'13	0°-40'-48
opposition	3432 Sep 17 06:32	25° <del>♂</del> 27'41	0°-49'-56	min. Earth dist.	3440 Oct 19 02:02	27° <del>♂</del> 16'09	19.06870 AU
direct	3432 Dec 02 07:11	23° <del>♂</del> 31'11		direct	3441 Jan 03 07:07	25° <del>♂</del> 17'53	
conjunction	3433 Mar 18 01:36	27° <del>♂</del> 24'59	0°-45'-4	conjunction	3441 Apr 18 18:48	29° <del>♂</del> 10'11	0°-36'-2
minimum elong	3433 Mar 18 01:36	27° <del>♂</del> 24'59	0°45'04	minimum elong	3441 Apr 18 18:48	29° <del>♂</del> 10'11	0°36'03
max. Earth dist.	3433 Mar 19 00:23	27° <del>♂</del> 28'15	21.03147 AU	max. Earth dist.	3441 Apr 19 14:36	29° <del>♂</del> 13'00	21.06243 AU
	3433 May 05 18:33	0° <del>♂</del>			3441 May 03 10:05	0° <del>♂</del>	
retrograde	3433 Jul 05 16:21	1° <del>♂</del> 25'51		retrograde	3441 Aug 07 08:05	3° <del>♂</del> 11'46	
	3433 Sep 07 18:35	30° <del>♂</del>		min. Earth dist.	3441 Oct 23 09:41	1° <del>♂</del> 14'14	19.05584 AU
opposition	3433 Sep 21 15:37	29° <del>♂</del> 27'13	0°-49'-35	opposition	3441 Oct 24 04:13	1° <del>♂</del> 12'22	0°-38'-42
min. Earth dist.	3433 Sep 20 17:21	29° <del>♂</del> 29'27	19.04320 AU		3441 Nov 25 10:28	30° <del>♂</del>	
direct	3433 Dec 06 14:12	27° <del>♂</del> 30'51		direct	3442 Jan 07 11:22	29° <del>♂</del> 15'58	
	3434 Feb 25 08:24	0° <del>♂</del>			3442 Feb 18 06:45	0° <del>♂</del>	
conjunction	3434 Mar 22 06:37	1° <del>♂</del> 24'11	0°-44'-40	conjunction	3442 Apr 23 00:53	3° <del>♂</del> 08'31	0°-34'-3
minimum elong	3434 Mar 22 06:37	1° <del>♂</del> 24'11	0°44'41	minimum elong	3442 Apr 23 00:53	3° <del>♂</del> 08'31	0°34'03
max. Earth dist.	3434 Mar 23 06:11	1° <del>♂</del> 27'34	21.05257 AU	max. Earth dist.	3442 Apr 23 21:08	3° <del>♂</del> 11'24	21.04763 AU
retrograde	3434 Jul 10 00:06	5° <del>♂</del> 24'58		retrograde	3442 Aug 11 15:43	7° <del>♂</del> 10'27	
min. Earth dist.	3434 Sep 25 02:38	3° <del>♂</del> 28'28	19.06142 AU	opposition	3442 Oct 28 11:05	5° <del>♂</del> 11'00	0°-36'-25
opposition	3434 Sep 26 00:22	3° <del>♂</del> 26'18	0°-49'-1	min. Earth dist.	3442 Oct 27 17:07	5° <del>♂</del> 12'49	19.03898 AU
direct	3434 Dec 10 20:32	1° <del>♂</del> 30'02		direct	3443 Jan 11 17:03	3° <del>♂</del> 14'33	
conjunction	3435 Mar 26 11:35	5° <del>♂</del> 22'56	0°-44'-2	conjunction	3443 Apr 27 07:25	7° <del>♂</del> 07'26	0°-31'-54
minimum elong	3435 Mar 26 11:35	5° <del>♂</del> 22'56	0°44'03	minimum elong	3443 Apr 27 07:25	7° <del>♂</del> 07'26	0°31'55
max. Earth dist.	3435 Mar 27 09:47	5° <del>♂</del> 26'08	21.06808 AU	max. Earth dist.	3443 Apr 28 01:44	7° <del>♂</del> 10'03	21.02889 AU
retrograde	3435 Jul 14 08:40	9° <del>♂</del> 23'41		retrograde	3443 Aug 16 01:17	11° <del>♂</del> 09'47	
min. Earth dist.	3435 Sep 29 11:09	7° <del>♂</del> 27'04	19.07419 AU	opposition	3443 Nov 01 17:53	9° <del>♂</del> 10'16	0°-33'-57
opposition	3435 Sep 30 08:33	7° <del>♂</del> 24'55	0°-48'-12	min. Earth dist.	3443 Nov 01 01:06	9° <del>♂</del> 11'57	19.01816 AU
direct	3435 Dec 15 02:53	5° <del>♂</del> 28'41		direct	3444 Jan 15 21:30	7° <del>♂</del> 13'44	
conjunction	3436 Mar 29 16:38	9° <del>♂</del> 21'17	0°-43'-12	conjunction	3444 Apr 30 14:36	11° <del>♂</del> 07'05	0°-29'-35
minimum elong	3436 Mar 29 16:38	9° <del>♂</del> 21'17	0°43'13	minimum elong	3444 Apr 30 14:36	11° <del>♂</del> 07'05	0°29'36
max. Earth dist.	3436 Mar 30 15:30	9° <del>♂</del> 24'33	21.07813 AU	max. Earth dist.	3444 May 01 09:00	11° <del>♂</del> 09'42	21.00589 AU
retrograde	3436 Jul 17 16:22	13° <del>♂</del> 21'59			3444 Jul 30 05:53	15° <del>♂</del>	
opposition	3436 Oct 03 16:27	11° <del>♂</del> 23'08	0°-47'-9	retrograde	3444 Aug 19 09:26	15° <del>♂</del> 09'54	
min. Earth dist.	3436 Oct 02 19:35	11° <del>♂</del> 25'13	19.08165 AU		3444 Sep 08 17:08	15° <del>♂</del>	
direct	3436 Dec 18 09:08	9° <del>♂</del> 26'55		min. Earth dist.	3444 Nov 04 08:55	13° <del>♂</del> 11'55	18.99285 AU
				opposition	3444 Nov 05 00:52	13° <del>♂</del> 10'18	0°-31'-19
conjunction	3437 Apr 02 21:23	13° <del>♂</del> 19'14	0°-42'-9	direct	3445 Jan 19 03:05	11° <del>♂</del> 13'41	
minimum elong	3437 Apr 02 21:23	13° <del>♂</del> 19'14	0°42'11		3445 May 02 17:23	15° <del>♂</del>	
max. Earth dist.	3437 Apr 03 18:58	13° <del>♂</del> 22'19	21.08328 AU				

conjunction	3445 May 04 22:03	15°♄07'32	0°-27'-7	max. Earth dist.	3452 Jun 03 03:33	13°♄38'49	20.65617 AU
minimum elong	3445 May 04 22:04	15°♄07'32	0°27'08	retrograde	3452 Sep 21 22:50	17°♄45'48	
max. Earth dist.	3445 May 05 14:13	15°♄09'51	20.97837 AU	opposition	3452 Dec 07 15:20	15°♄44'53	0°-5'-23
retrograde	3445 Aug 23 19:28	19°♄10'54		min. Earth dist.	3452 Dec 07 10:21	15°♄45'24	18.62683 AU
opposition	3445 Nov 09 08:07	17°♄11'13	0°-28'-31	direct	3453 Feb 20 09:17	13°♄46'07	
min. Earth dist.	3445 Nov 08 17:44	17°♄12'40	18.96292 AU				
direct	3446 Jan 23 08:14	15°♄14'28		conjunction	3453 Jun 07 09:47	17°♄46'52	0°-3'-19
				minimum elong	3453 Jun 07 09:47	17°♄46'52	0°03'21
conjunction	3446 May 09 06:30	19°♄08'56	0°-24'-31	behind sun begin	3453 Jun 07 03:06	17°♄45'56	
minimum elong	3446 May 09 06:30	19°♄08'56	0°24'33	behind sun end	3453 Jun 07 16:28	17°♄47'49	
max. Earth dist.	3446 May 09 22:19	19°♄11'11	20.94589 AU	max. Earth dist.	3453 Jun 07 13:33	17°♄47'22	20.59741 AU
retrograde	3446 Aug 28 04:52	23°♄12'50		retrograde	3453 Sep 26 11:11	21°♄55'35	
opposition	3446 Nov 13 15:21	21°♄13'02	0°-25'-34	opposition	3453 Dec 12 00:30	19°♄54'29	0°-1'-45
min. Earth dist.	3446 Nov 13 02:05	21°♄14'23	18.92780 AU	min. Earth dist.	3453 Dec 11 21:27	19°♄54'48	18.56730 AU
direct	3447 Jan 27 14:26	19°♄16'06		direct	3454 Feb 24 17:07	17°♄55'22	
				asc. node	3454 Jun 09 14:47	21°♄49'06	
conjunction	3447 May 13 15:24	23°♄11'15	0°-21'-47				
minimum elong	3447 May 13 15:24	23°♄11'15	0°21'47	conjunction	3454 Jun 11 23:31	21°♄57'21	0°00'02
max. Earth dist.	3447 May 14 04:26	23°♄13'06	20.90828 AU	minimum elong	3454 Jun 11 23:32	21°♄57'21	0°00'02
retrograde	3447 Sep 01 15:05	27°♄15'45		behind sun begin	3454 Jun 11 18:03	21°♄56'35	
opposition	3447 Nov 17 22:55	25°♄15'47	0°-22'-28	behind sun end	3454 Jun 12 05:01	21°♄58'07	
min. Earth dist.	3447 Nov 17 11:33	25°♄16'57	18.88760 AU	max. Earth dist.	3454 Jun 12 02:56	21°♄57'47	20.53715 AU
direct	3448 Jan 31 20:15	23°♄18'37		retrograde	3454 Oct 01 01:16	26°♄06'53	
				opposition	3454 Dec 16 09:51	24°♄05'39	0°01'53
conjunction	3448 May 17 00:56	27°♄14'30	0°-18'-55	min. Earth dist.	3454 Dec 16 07:22	24°♄05'55	18.50636 AU
minimum elong	3448 May 17 00:56	27°♄14'30	0°18'57	direct	3455 Mar 01 02:35	22°♄06'12	
max. Earth dist.	3448 May 17 13:28	27°♄16'18	20.86556 AU				
	3448 Jul 08 15:33	0°♄		conjunction	3455 Jun 16 13:57	26°♄09'28	0°03'24
retrograde	3448 Sep 05 01:27	1°♄19'36		minimum elong	3455 Jun 16 13:57	26°♄09'28	0°03'23
	3448 Nov 04 11:05	30°♄		behind sun begin	3455 Jun 16 07:16	26°♄08'32	
opposition	3448 Nov 21 06:31	29°♄19'28	0°-19'-14	behind sun end	3455 Jun 16 20:38	26°♄10'25	
min. Earth dist.	3448 Nov 20 20:11	29°♄20'32	18.84241 AU	max. Earth dist.	3455 Jun 16 14:40	26°♄09'33	20.47571 AU
direct	3449 Feb 04 03:27	27°♄22'02			3455 Sep 07 13:19	0°♄	
	3449 Apr 28 05:51	0°♄		retrograde	3455 Oct 05 14:56	0°♄19'54	
					3455 Nov 02 23:09	30°♄	
conjunction	3449 May 21 10:56	1°♄18'44	0°-15'-57	opposition	3455 Dec 20 19:57	28°♄18'32	0°05'33
minimum elong	3449 May 21 10:56	1°♄18'44	0°15'58	min. Earth dist.	3455 Dec 20 19:34	28°♄18'35	18.44446 AU
max. Earth dist.	3449 May 21 20:43	1°♄20'07	20.81834 AU	direct	3456 Mar 04 10:55	26°♄18'47	
retrograde	3449 Sep 09 11:54	5°♄24'28			3456 Jun 13 13:15	0°♄	
opposition	3449 Nov 25 14:25	3°♄24'08	0°-15'-54				
min. Earth dist.	3449 Nov 25 06:02	3°♄25'00	18.79318 AU	conjunction	3456 Jun 20 05:17	0°♄23'24	0°06'42
direct	3450 Feb 08 09:50	1°♄26'22		minimum elong	3456 Jun 20 05:16	0°♄23'24	0°06'41
				behind sun begin	3456 Jun 19 22:59	0°♄22'30	
conjunction	3450 May 25 21:43	5°♄23'58	0°-12'-53	behind sun end	3456 Jun 20 11:33	0°♄24'18	
minimum elong	3450 May 25 21:43	5°♄23'58	0°12'55	max. Earth dist.	3456 Jun 20 05:33	0°♄23'26	20.41334 AU
behind sun begin	3450 May 25 17:41	5°♄23'24		retrograde	3456 Oct 09 07:10	4°♄34'43	
behind sun end	3450 May 26 01:45	5°♄24'32		opposition	3456 Dec 24 06:28	2°♄33'16	0°09'12
max. Earth dist.	3450 May 26 07:06	5°♄25'18	20.76726 AU	min. Earth dist.	3456 Dec 24 06:38	2°♄33'15	18.38159 AU
retrograde	3450 Sep 13 23:16	9°♄30'23		direct	3457 Mar 08 22:08	0°♄33'13	
opposition	3450 Nov 29 22:26	7°♄29'51	0°-12'-28				
min. Earth dist.	3450 Nov 29 14:54	7°♄30'37	18.74033 AU	conjunction	3457 Jun 24 21:29	4°♄39'15	0°09'58
direct	3451 Feb 12 17:46	5°♄31'46		minimum elong	3457 Jun 24 21:29	4°♄39'15	0°09'58
				behind sun begin	3457 Jun 24 16:04	4°♄38'28	
conjunction	3451 May 30 09:03	9°♄30'19	0°-9'-45	behind sun end	3457 Jun 25 02:54	4°♄40'01	
minimum elong	3451 May 30 09:03	9°♄30'19	0°09'46	max. Earth dist.	3457 Jun 24 19:05	4°♄38'55	20.35006 AU
behind sun begin	3451 May 30 03:35	9°♄29'33		retrograde	3457 Oct 13 21:45	8°♄51'30	
behind sun end	3451 May 30 14:30	9°♄31'05		opposition	3457 Dec 28 17:39	6°♄49'58	0°12'51
max. Earth dist.	3451 May 30 15:43	9°♄31'16	20.71297 AU	min. Earth dist.	3457 Dec 28 20:15	6°♄49'41	18.31787 AU
retrograde	3451 Sep 18 10:21	13°♄37'27		direct	3458 Mar 13 07:18	4°♄49'35	
opposition	3451 Dec 04 06:43	11°♄36'43	0°-8'-57				
min. Earth dist.	3451 Dec 04 01:08	11°♄37'18	18.68473 AU	conjunction	3458 Jun 29 14:55	8°♄57'06	0°13'13
direct	3452 Feb 17 00:49	9°♄38'17		minimum elong	3458 Jun 29 14:55	8°♄57'06	0°13'13
				behind sun begin	3458 Jun 29 11:06	8°♄56'33	
conjunction	3452 Jun 02 21:11	13°♄37'55	0°-6'-34	behind sun end	3458 Jun 29 18:45	8°♄57'39	
minimum elong	3452 Jun 02 21:12	13°♄37'55	0°06'34	max. Earth dist.	3458 Jun 29 11:39	8°♄56'38	20.28577 AU
behind sun begin	3452 Jun 02 14:54	13°♄37'02		retrograde	3458 Oct 18 16:02	13°♄10'17	
behind sun end	3452 Jun 03 03:29	13°♄38'48		opposition	3459 Jan 02 05:24	11°♄08'40	0°16'27

min. Earth dist.	3459 Jan 02 08:49	11° $\mathring{O}$ 08'18	18.25290 AU	opposition	3467 Feb 06 03:49	16° $\mathring{O}$ 44'15	0°40'58
direct	3459 Mar 17 20:30	9° $\mathring{O}$ 07'57		min. Earth dist.	3467 Feb 06 18:36	16° $\mathring{O}$ 42'38	17.72120 AU
					3467 Mar 25 16:58	15° $\mathring{R}$ $\mathring{O}$	
conjunction	3459 Jul 04 09:10	13° $\mathring{O}$ 16'58	0°16'26	direct	3467 Apr 22 04:32	14° $\mathring{O}$ 40'13	
minimum elong	3459 Jul 04 09:10	13° $\mathring{O}$ 16'58	0°16'27		3467 May 19 09:29	15° $\mathring{O}$	
max. Earth dist.	3459 Jul 04 02:57	13° $\mathring{O}$ 16'04	20.22006 AU				
retrograde	3459 Oct 23 07:18	17° $\mathring{O}$ 31'04		conjunction	3467 Aug 10 17:25	19° $\mathring{O}$ 01'12	0°37'50
opposition	3460 Jan 06 17:57	15° $\mathring{O}$ 29'21	0°19'59	minimum elong	3467 Aug 10 17:25	19° $\mathring{O}$ 01'12	0°37'50
min. Earth dist.	3460 Jan 07 00:00	15° $\mathring{O}$ 28'42	18.18659 AU	max. Earth dist.	3467 Aug 09 22:47	18° $\mathring{O}$ 58'22	19.69144 AU
direct	3460 Mar 21 07:46	13° $\mathring{O}$ 28'16		retrograde	3467 Nov 28 15:38	23° $\mathring{O}$ 21'43	
				opposition	3468 Feb 10 21:47	21° $\mathring{O}$ 18'51	0°43'09
conjunction	3460 Jul 08 04:28	17° $\mathring{O}$ 38'48	0°19'34	min. Earth dist.	3468 Feb 11 14:10	21° $\mathring{O}$ 17'04	17.66299 AU
minimum elong	3460 Jul 08 04:28	17° $\mathring{O}$ 38'48	0°19'34	direct	3468 Apr 25 23:19	19° $\mathring{O}$ 14'29	
max. Earth dist.	3460 Jul 07 21:02	17° $\mathring{O}$ 37'42	20.15311 AU				
retrograde	3460 Oct 27 02:16	21° $\mathring{O}$ 53'48		conjunction	3468 Aug 14 18:35	23° $\mathring{O}$ 36'53	0°39'40
opposition	3461 Jan 10 07:05	19° $\mathring{O}$ 51'56	0°23'26	minimum elong	3468 Aug 14 18:35	23° $\mathring{O}$ 36'52	0°39'40
min. Earth dist.	3461 Jan 10 13:50	19° $\mathring{O}$ 51'13	18.11903 AU	max. Earth dist.	3468 Aug 13 22:29	23° $\mathring{O}$ 33'48	19.63527 AU
direct	3461 Mar 25 22:53	17° $\mathring{O}$ 50'28		retrograde	3468 Dec 02 14:23	27° $\mathring{O}$ 58'05	
				opposition	3469 Feb 14 16:17	25° $\mathring{O}$ 55'10	0°45'05
conjunction	3461 Jul 13 00:28	22° $\mathring{O}$ 02'31	0°22'38	min. Earth dist.	3469 Feb 15 08:37	25° $\mathring{O}$ 53'23	17.60895 AU
minimum elong	3461 Jul 13 00:28	22° $\mathring{O}$ 02'31	0°22'38	direct	3469 Apr 30 20:29	23° $\mathring{O}$ 50'29	
max. Earth dist.	3461 Jul 12 14:18	22° $\mathring{O}$ 01'00	20.08502 AU				
retrograde	3461 Oct 31 18:25	26° $\mathring{O}$ 18'23		conjunction	3469 Aug 19 20:33	28° $\mathring{O}$ 14'17	0°41'15
opposition	3462 Jan 14 21:02	24° $\mathring{O}$ 16'22	0°26'46	minimum elong	3469 Aug 19 20:33	28° $\mathring{O}$ 14'17	0°41'16
min. Earth dist.	3462 Jan 15 06:25	24° $\mathring{O}$ 15'21	18.05064 AU	max. Earth dist.	3469 Aug 19 00:20	28° $\mathring{O}$ 11'11	19.58325 AU
direct	3462 Mar 30 12:26	22° $\mathring{O}$ 14'28			3469 Sep 18 07:20	0° $\mathring{R}$	
				retrograde	3469 Dec 07 12:05	2° $\mathring{R}$ 36'07	
conjunction	3462 Jul 17 21:32	26° $\mathring{O}$ 28'02	0°25'34	opposition	3470 Feb 19 11:43	0° $\mathring{R}$ 33'13	0°46'43
minimum elong	3462 Jul 17 21:32	26° $\mathring{O}$ 28'02	0°25'34	min. Earth dist.	3470 Feb 20 05:24	0° $\mathring{R}$ 31'17	17.55911 AU
max. Earth dist.	3462 Jul 17 09:59	26° $\mathring{O}$ 26'18	20.01645 AU		3470 Mar 04 07:17	30° $\mathring{R}$ $\mathring{O}$	
	3462 Sep 24 19:22	0° $\mathring{O}$		direct	3470 May 05 16:37	28° $\mathring{O}$ 28'18	
retrograde	3462 Nov 05 13:55	0° $\mathring{O}$ 44'43			3470 Jul 05 00:14	0° $\mathring{R}$	
	3462 Dec 17 20:48	30° $\mathring{R}$ $\mathring{O}$					
opposition	3463 Jan 19 11:19	28° $\mathring{O}$ 42'33	0°29'59	conjunction	3470 Aug 24 23:01	2° $\mathring{R}$ 53'25	0°42'35
min. Earth dist.	3463 Jan 19 21:18	28° $\mathring{O}$ 41'29	17.98202 AU	minimum elong	3470 Aug 24 23:01	2° $\mathring{R}$ 53'25	0°42'35
direct	3463 Apr 04 05:32	26° $\mathring{O}$ 40'13		max. Earth dist.	3470 Aug 24 01:06	2° $\mathring{R}$ 50'03	19.53562 AU
	3463 Jul 07 08:29	0° $\mathring{O}$		retrograde	3470 Dec 12 12:12	7° $\mathring{R}$ 15'52	
				opposition	3471 Feb 24 07:43	5° $\mathring{R}$ 13'00	0°48'04
conjunction	3463 Jul 22 19:18	0° $\mathring{O}$ 55'18	0°28'22	min. Earth dist.	3471 Feb 25 01:35	5° $\mathring{R}$ 11'03	17.51366 AU
minimum elong	3463 Jul 22 19:18	0° $\mathring{O}$ 55'18	0°28'22	direct	3471 May 10 15:09	3° $\mathring{R}$ 07'52	
max. Earth dist.	3463 Jul 22 05:33	0° $\mathring{O}$ 53'14	19.94795 AU	max. Earth dist.	3471 Aug 29 04:36	7° $\mathring{R}$ 30'55	19.49215 AU
retrograde	3463 Nov 10 07:02	5° $\mathring{O}$ 12'48					
opposition	3464 Jan 24 02:34	3° $\mathring{O}$ 10'28	0°33'01	conjunction	3471 Aug 30 02:11	7° $\mathring{R}$ 34'15	0°43'39
min. Earth dist.	3464 Jan 24 14:55	3° $\mathring{O}$ 09'08	17.91400 AU	minimum elong	3471 Aug 30 02:11	7° $\mathring{R}$ 34'15	0°43'40
direct	3464 Apr 07 20:56	1° $\mathring{O}$ 07'41		retrograde	3471 Dec 17 11:25	11° $\mathring{R}$ 57'14	
				opposition	3472 Feb 29 04:39	9° $\mathring{R}$ 54'27	0°49'06
conjunction	3464 Jul 26 17:38	5° $\mathring{O}$ 24'15	0°31'01	min. Earth dist.	3472 Feb 29 23:34	9° $\mathring{R}$ 52'22	17.47225 AU
minimum elong	3464 Jul 26 17:38	5° $\mathring{O}$ 24'15	0°31'02	direct	3472 May 14 12:46	7° $\mathring{R}$ 49'08	
max. Earth dist.	3464 Jul 26 02:38	5° $\mathring{O}$ 22'00	19.88054 AU	max. Earth dist.	3472 Sep 02 06:07	12° $\mathring{R}$ 13'03	19.45274 AU
retrograde	3464 Nov 14 03:28	9° $\mathring{O}$ 42'34					
opposition	3465 Jan 27 18:17	7° $\mathring{O}$ 40'03	0°35'53	conjunction	3472 Sep 03 05:31	12° $\mathring{R}$ 16'40	0°44'26
min. Earth dist.	3465 Jan 28 06:54	7° $\mathring{O}$ 38'41	17.84737 AU	minimum elong	3472 Sep 03 05:31	12° $\mathring{R}$ 16'40	0°44'26
direct	3465 Apr 12 15:30	5° $\mathring{O}$ 36'50		retrograde	3472 Dec 21 12:18	16° $\mathring{R}$ 40'08	
				opposition	3473 Mar 05 02:13	14° $\mathring{R}$ 37'23	0°49'50
conjunction	3465 Jul 31 16:53	9° $\mathring{O}$ 54'54	0°33'30	min. Earth dist.	3473 Mar 05 21:35	14° $\mathring{R}$ 35'15	17.43484 AU
minimum elong	3465 Jul 31 16:53	9° $\mathring{O}$ 54'54	0°33'29	direct	3473 May 19 12:34	12° $\mathring{R}$ 31'53	
max. Earth dist.	3465 Jul 31 00:25	9° $\mathring{O}$ 52'25	19.81477 AU	max. Earth dist.	3473 Sep 07 10:42	16° $\mathring{R}$ 56'55	19.41713 AU
retrograde	3465 Nov 18 22:03	14° $\mathring{O}$ 13'58					
opposition	3466 Feb 01 10:43	12° $\mathring{O}$ 11'19	0°38'33	conjunction	3473 Sep 08 09:39	17° $\mathring{R}$ 00'29	0°44'55
min. Earth dist.	3466 Feb 02 01:26	12° $\mathring{O}$ 09'43	17.78285 AU	minimum elong	3473 Sep 08 09:39	17° $\mathring{R}$ 00'29	0°44'54
direct	3466 Apr 17 08:42	10° $\mathring{O}$ 07'41		retrograde	3473 Dec 26 12:04	21° $\mathring{R}$ 24'19	
				opposition	3474 Mar 10 00:25	19° $\mathring{R}$ 21'36	0°50'13
conjunction	3466 Aug 05 16:51	14° $\mathring{O}$ 27'13	0°35'46	min. Earth dist.	3474 Mar 10 20:28	19° $\mathring{R}$ 19'24	17.40112 AU
minimum elong	3466 Aug 05 16:51	14° $\mathring{O}$ 27'13	0°35'47	direct	3474 May 24 12:18	17° $\mathring{R}$ 15'56	
max. Earth dist.	3466 Aug 04 22:56	14° $\mathring{O}$ 24'30	19.75159 AU				
	3466 Aug 14 17:06	15° $\mathring{O}$		conjunction	3474 Sep 13 13:52	21° $\mathring{R}$ 45'28	0°45'06
retrograde	3466 Nov 23 19:32	18° $\mathring{O}$ 47'02		minimum elong	3474 Sep 13 13:52	21° $\mathring{R}$ 45'28	0°45'06

max. Earth dist.	3474 Sep 12 13:12	21° $\mathring{M}$ 41'37	19.38537 AU	max. Earth dist.	3482 Oct 22 00:55	29° $\mathring{L}$ 57'08	19.31066 AU
retrograde	3474 Dec 31 12:32	26° $\mathring{M}$ 09'35			3482 Oct 22 19:09	0° $\mathring{M}$	
opposition	3475 Mar 14 23:19	24° $\mathring{M}$ 06'53	0°50'15	retrograde	3483 Feb 07 12:24	4° $\mathring{M}$ 23'28	
min. Earth dist.	3475 Mar 15 19:55	24° $\mathring{M}$ 04'38	17.37145 AU	opposition	3483 Apr 22 04:09	2° $\mathring{M}$ 21'09	0°38'27
direct	3475 May 29 13:27	22° $\mathring{M}$ 01'04		min. Earth dist.	3483 Apr 22 21:47	2° $\mathring{M}$ 19'14	17.31925 AU
				direct	3483 Jul 07 15:39	0° $\mathring{M}$ 14'55	
conjunction	3475 Sep 18 18:15	26° $\mathring{M}$ 31'22	0°44'58	conjunction	3483 Oct 27 23:00	4° $\mathring{M}$ 46'23	0°33'13
minimum elong	3475 Sep 18 18:15	26° $\mathring{M}$ 31'22	0°44'58	minimum elong	3483 Oct 27 23:00	4° $\mathring{M}$ 46'23	0°33'13
max. Earth dist.	3475 Sep 17 18:21	26° $\mathring{M}$ 27'38	19.35770 AU	max. Earth dist.	3483 Oct 27 03:46	4° $\mathring{M}$ 43'21	19.32885 AU
	3475 Nov 21 05:46	0° $\mathring{L}$		retrograde	3484 Feb 12 13:11	9° $\mathring{M}$ 09'10	
retrograde	3476 Jan 05 12:32	0° $\mathring{L}$ 55'41		opposition	3484 Apr 26 05:38	7° $\mathring{M}$ 07'00	0°35'37
	3476 Feb 20 22:48	30° $\mathring{R}$ $\mathring{M}$		min. Earth dist.	3484 Apr 26 21:11	7° $\mathring{M}$ 05'19	17.34035 AU
opposition	3476 Mar 18 22:44	28° $\mathring{M}$ 53'00	0°49'57	direct	3484 Jul 11 19:46	5° $\mathring{M}$ 00'57	
min. Earth dist.	3476 Mar 19 19:17	28° $\mathring{M}$ 50'45	17.34588 AU	max. Earth dist.	3484 Oct 31 07:48	9° $\mathring{M}$ 29'17	19.35280 AU
direct	3476 Jun 02 15:53	26° $\mathring{M}$ 47'02					
	3476 Sep 01 22:18	0° $\mathring{L}$		conjunction	3484 Nov 01 00:53	9° $\mathring{M}$ 31'59	0°30'35
conjunction	3476 Sep 22 22:39	1° $\mathring{L}$ 17'58	0°44'32	minimum elong	3484 Nov 01 00:53	9° $\mathring{M}$ 31'59	0°30'36
minimum elong	3476 Sep 22 22:39	1° $\mathring{L}$ 17'58	0°44'32	retrograde	3485 Feb 16 12:05	13° $\mathring{M}$ 54'16	
max. Earth dist.	3476 Sep 21 21:39	1° $\mathring{L}$ 14'04	19.33441 AU	opposition	3485 May 01 07:13	11° $\mathring{M}$ 52'18	0°32'34
retrograde	3477 Jan 09 12:00	5° $\mathring{L}$ 42'23		min. Earth dist.	3485 May 01 22:42	11° $\mathring{M}$ 50'38	17.36694 AU
opposition	3477 Mar 23 22:30	3° $\mathring{L}$ 39'43	0°49'18	direct	3485 Jul 16 22:28	9° $\mathring{M}$ 46'28	
min. Earth dist.	3477 Mar 24 19:41	3° $\mathring{L}$ 37'24	17.32503 AU	max. Earth dist.	3485 Nov 05 09:20	14° $\mathring{M}$ 14'17	19.38201 AU
direct	3477 Jun 07 18:17	1° $\mathring{L}$ 33'35					
max. Earth dist.	3477 Sep 27 03:01	6° $\mathring{L}$ 01'16	19.31601 AU	conjunction	3485 Nov 06 02:06	14° $\mathring{M}$ 16'56	0°27'45
				minimum elong	3485 Nov 06 02:06	14° $\mathring{M}$ 16'56	0°27'44
conjunction	3477 Sep 28 03:09	6° $\mathring{L}$ 05'03	0°43'47		3485 Nov 17 12:19	15° $\mathring{M}$	
minimum elong	3477 Sep 28 03:09	6° $\mathring{L}$ 05'03	0°43'47	retrograde	3486 Feb 21 12:04	18° $\mathring{M}$ 38'40	
retrograde	3478 Jan 14 12:26	10° $\mathring{L}$ 29'27		opposition	3486 May 06 08:50	16° $\mathring{M}$ 36'54	0°29'17
opposition	3478 Mar 28 22:44	8° $\mathring{L}$ 26'48	0°48'18	min. Earth dist.	3486 May 06 22:21	16° $\mathring{M}$ 35'27	17.39847 AU
min. Earth dist.	3478 Mar 29 19:13	8° $\mathring{L}$ 24'33	17.30907 AU		3486 Jun 18 08:43	15° $\mathring{R}$ $\mathring{M}$	
direct	3478 Jun 12 22:38	6° $\mathring{L}$ 20'33		direct	3486 Jul 22 02:26	14° $\mathring{M}$ 31'18	
max. Earth dist.	3478 Oct 02 07:00	10° $\mathring{L}$ 48'31	19.30270 AU		3486 Aug 24 06:55	15° $\mathring{M}$	
conjunction	3478 Oct 03 07:19	10° $\mathring{L}$ 52'21	0°42'43	conjunction	3486 Nov 11 02:41	19° $\mathring{M}$ 01'04	0°24'43
minimum elong	3478 Oct 03 07:20	10° $\mathring{L}$ 52'21	0°42'44	minimum elong	3486 Nov 11 02:41	19° $\mathring{M}$ 01'04	0°24'44
retrograde	3479 Jan 19 11:33	15° $\mathring{L}$ 16'40		max. Earth dist.	3486 Nov 10 12:23	18° $\mathring{M}$ 58'49	19.41574 AU
opposition	3479 Apr 02 23:22	13° $\mathring{L}$ 14'01	0°46'57	retrograde	3487 Feb 26 10:29	23° $\mathring{M}$ 22'12	
min. Earth dist.	3479 Apr 03 20:19	13° $\mathring{L}$ 11'44	17.29864 AU	opposition	3487 May 11 10:33	21° $\mathring{M}$ 20'37	0°25'49
direct	3479 Jun 18 01:36	11° $\mathring{L}$ 07'40		min. Earth dist.	3487 May 11 23:37	21° $\mathring{M}$ 19'13	17.43424 AU
max. Earth dist.	3479 Oct 07 11:57	15° $\mathring{L}$ 36'00	19.29523 AU	direct	3487 Jul 27 05:50	19° $\mathring{M}$ 15'18	
conjunction	3479 Oct 08 11:16	15° $\mathring{L}$ 39'40	0°41'22	conjunction	3487 Nov 16 02:31	23° $\mathring{M}$ 44'13	0°21'33
minimum elong	3479 Oct 08 11:16	15° $\mathring{L}$ 39'40	0°41'23	minimum elong	3487 Nov 16 02:31	23° $\mathring{M}$ 44'13	0°21'33
retrograde	3480 Jan 24 12:39	20° $\mathring{L}$ 03'49		max. Earth dist.	3487 Nov 15 12:27	23° $\mathring{M}$ 42'00	19.45359 AU
opposition	3480 Apr 07 00:10	18° $\mathring{L}$ 01'12	0°45'17	retrograde	3488 Mar 02 08:56	28° $\mathring{M}$ 04'41	
min. Earth dist.	3480 Apr 07 19:40	17° $\mathring{L}$ 59'04	17.29412 AU	opposition	3488 May 15 11:53	26° $\mathring{M}$ 03'16	0°22'12
direct	3480 Jun 22 06:22	15° $\mathring{L}$ 54'47		min. Earth dist.	3488 May 15 23:08	26° $\mathring{M}$ 02'04	17.47398 AU
				direct	3488 Jul 31 09:11	23° $\mathring{M}$ 58'12	
conjunction	3480 Oct 12 14:48	20° $\mathring{L}$ 26'50	0°39'43				
minimum elong	3480 Oct 12 14:49	20° $\mathring{L}$ 26'50	0°39'43	conjunction	3488 Nov 20 01:46	28° $\mathring{M}$ 26'11	0°18'14
max. Earth dist.	3480 Oct 11 16:19	20° $\mathring{L}$ 23'18	19.29381 AU	minimum elong	3488 Nov 20 01:46	28° $\mathring{M}$ 26'11	0°18'14
retrograde	3481 Jan 28 11:48	24° $\mathring{L}$ 50'44		max. Earth dist.	3488 Nov 19 14:11	28° $\mathring{M}$ 24'23	19.49505 AU
opposition	3481 Apr 12 01:22	22° $\mathring{L}$ 48'11	0°43'18		3488 Dec 15 11:24	0° $\mathring{L}$	
min. Earth dist.	3481 Apr 12 21:02	22° $\mathring{L}$ 46'02	17.29596 AU	retrograde	3489 Mar 07 06:38	2° $\mathring{L}$ 45'56	
direct	3481 Jun 27 08:54	20° $\mathring{L}$ 41'45		opposition	3489 May 20 13:09	0° $\mathring{L}$ 44'41	0°18'26
				min. Earth dist.	3489 May 20 23:35	0° $\mathring{L}$ 43'35	17.51697 AU
conjunction	3481 Oct 17 18:02	25° $\mathring{L}$ 13'44	0°37'48		3489 Jun 07 10:48	30° $\mathring{R}$ $\mathring{M}$	
minimum elong	3481 Oct 17 18:02	25° $\mathring{L}$ 13'44	0°37'48	direct	3489 Aug 05 12:43	28° $\mathring{M}$ 39'53	
max. Earth dist.	3481 Oct 16 20:24	25° $\mathring{L}$ 10'19	19.29898 AU		3489 Oct 01 00:11	0° $\mathring{L}$	
retrograde	3482 Feb 02 13:02	29° $\mathring{L}$ 37'18					
opposition	3482 Apr 17 02:32	27° $\mathring{L}$ 34'51	0°41'00	conjunction	3489 Nov 25 00:00	3° $\mathring{L}$ 06'49	0°14'49
min. Earth dist.	3482 Apr 17 20:16	27° $\mathring{L}$ 32'55	17.30432 AU	minimum elong	3489 Nov 25 00:00	3° $\mathring{L}$ 06'49	0°14'49
direct	3482 Jul 02 13:14	25° $\mathring{L}$ 28'29		behind sun begin	3489 Nov 24 21:19	3° $\mathring{L}$ 06'24	
				behind sun end	3489 Nov 25 02:42	3° $\mathring{L}$ 07'13	
conjunction	3482 Oct 22 20:53	0° $\mathring{M}$ 00'16	0°35'38	max. Earth dist.	3489 Nov 24 12:47	3° $\mathring{L}$ 05'04	19.53967 AU
minimum elong	3482 Oct 22 20:54	0° $\mathring{M}$ 00'17	0°35'38	retrograde	3490 Mar 12 03:28	7° $\mathring{L}$ 25'47	



opposition	3490 May 25 14:03	5° <del>2</del> 24'41	0°14'33	conjunction	3496 Dec 26 09:52	5° <del>3</del> 02'01	0°-10'-3
min. Earth dist.	3490 May 25 22:50	5° <del>2</del> 23'45	17.56313 AU	minimum elong	3496 Dec 26 09:52	5° <del>3</del> 02'01	0°10'03
direct	3490 Aug 10 15:14	3° <del>2</del> 20'08		behind sun begin	3496 Dec 26 04:33	5° <del>3</del> 01'13	
				behind sun end	3496 Dec 26 15:12	5° <del>3</del> 02'49	
conjunction	3490 Nov 29 21:33	7° <del>2</del> 45'55	0°11'19	max. Earth dist.	3496 Dec 26 12:22	5° <del>3</del> 02'23	19.93636 AU
minimum elong	3490 Nov 29 21:33	7° <del>2</del> 45'55	0°11'19	retrograde	3497 Apr 12 16:02	9° <del>3</del> 14'45	
behind sun begin	3490 Nov 29 16:41	7° <del>2</del> 45'11		opposition	3497 Jun 27 06:11	7° <del>3</del> 14'33	0°-13'00
behind sun end	3490 Nov 30 02:26	7° <del>2</del> 46'40		min. Earth dist.	3497 Jun 27 02:11	7° <del>3</del> 14'58	17.96972 AU
max. Earth dist.	3490 Nov 29 12:56	7° <del>2</del> 44'35	19.58736 AU	direct	3497 Sep 12 11:50	5° <del>3</del> 12'13	
retrograde	3491 Mar 16 23:59	12° <del>2</del> 04'04					
opposition	3491 May 30 14:36	10° <del>2</del> 03'05	0°10'37	conjunction	3497 Dec 31 00:39	9° <del>3</del> 28'10	0°-13'-25
min. Earth dist.	3491 May 30 22:00	10° <del>2</del> 02'18	17.61216 AU	minimum elong	3497 Dec 31 00:39	9° <del>3</del> 28'10	0°13'26
direct	3491 Aug 15 17:50	7° <del>2</del> 58'49		behind sun begin	3497 Dec 30 20:50	9° <del>3</del> 27'35	
				behind sun end	3497 Dec 31 04:28	9° <del>3</del> 28'44	
conjunction	3491 Dec 04 17:54	12° <del>2</del> 23'20	0°07'46	max. Earth dist.	3497 Dec 31 04:59	9° <del>3</del> 28'48	20.00395 AU
minimum elong	3491 Dec 04 17:54	12° <del>2</del> 23'20	0°07'46	retrograde	3498 Apr 17 07:16	13° <del>3</del> 40'01	
behind sun begin	3491 Dec 04 11:56	12° <del>2</del> 22'25		opposition	3498 Jul 02 02:51	11° <del>3</del> 40'00	0°-16'-41
behind sun end	3491 Dec 04 23:52	12° <del>2</del> 24'14		min. Earth dist.	3498 Jul 01 21:58	11° <del>3</del> 40'31	18.03814 AU
max. Earth dist.	3491 Dec 04 10:02	12° <del>2</del> 22'07	19.63792 AU	direct	3498 Sep 17 07:07	9° <del>3</del> 38'06	
retrograde	3492 Mar 20 19:31	16° <del>2</del> 40'37					
opposition	3492 Jun 03 14:38	14° <del>2</del> 39'44	0°06'37	conjunction	3499 Jan 04 14:42	13° <del>3</del> 52'32	0°-16'-41
min. Earth dist.	3492 Jun 03 20:34	14° <del>2</del> 39'07	17.66421 AU	minimum elong	3499 Jan 04 14:42	13° <del>3</del> 52'32	0°16'42
direct	3492 Aug 19 18:32	12° <del>2</del> 35'43		max. Earth dist.	3499 Jan 04 20:50	13° <del>3</del> 53'28	20.07297 AU
				retrograde	3499 Apr 22 00:56	18° <del>3</del> 03'31	
conjunction	3492 Dec 08 13:30	16° <del>2</del> 58'54	0°04'11	opposition	3499 Jul 06 22:39	16° <del>3</del> 03'41	0°-20'-16
minimum elong	3492 Dec 08 13:30	16° <del>2</del> 58'54	0°04'11	min. Earth dist.	3499 Jul 06 15:11	16° <del>3</del> 04'28	18.10748 AU
behind sun begin	3492 Dec 08 06:59	16° <del>2</del> 57'55		direct	3499 Sep 22 03:58	14° <del>3</del> 02'12	
behind sun end	3492 Dec 08 20:00	16° <del>2</del> 59'54					
max. Earth dist.	3492 Dec 08 08:13	16° <del>2</del> 58'07	19.69145 AU	conjunction	3500 Jan 09 03:55	18° <del>3</del> 15'09	0°-19'-51
retrograde	3493 Mar 25 14:58	21° <del>2</del> 15'16		minimum elong	3500 Jan 09 03:55	18° <del>3</del> 15'09	0°19'51
opposition	3493 Jun 08 14:00	19° <del>2</del> 14'31	0°02'37	max. Earth dist.	3500 Jan 09 11:51	18° <del>3</del> 16'21	20.14241 AU
min. Earth dist.	3493 Jun 08 17:59	19° <del>2</del> 14'06	17.71912 AU	retrograde	3500 Apr 26 14:39	22° <del>3</del> 25'16	
direct	3493 Aug 24 19:16	17° <del>2</del> 10'46		opposition	3500 Jul 11 18:01	20° <del>3</del> 25'37	0°-23'-41
				min. Earth dist.	3500 Jul 11 10:04	20° <del>3</del> 26'26	18.17697 AU
conjunction	3493 Dec 13 08:00	21° <del>2</del> 32'34	0°00'33	direct	3500 Sep 26 21:35	18° <del>3</del> 24'32	
minimum elong	3493 Dec 13 07:59	21° <del>2</del> 32'34	0°00'33				
behind sun begin	3493 Dec 13 01:24	21° <del>2</del> 31'34		conjunction	3501 Jan 13 16:24	22° <del>3</del> 36'00	0°-22'-52
behind sun end	3493 Dec 13 14:34	21° <del>2</del> 33'33		minimum elong	3501 Jan 13 16:24	22° <del>3</del> 36'00	0°22'54
max. Earth dist.	3493 Dec 13 04:00	21° <del>2</del> 31'59	19.74797 AU	max. Earth dist.	3501 Jan 14 01:33	22° <del>3</del> 37'23	20.21166 AU
desc. node	3494 Feb 05 16:18	24° <del>2</del> 35'06		retrograde	3501 May 01 06:37	26° <del>3</del> 45'16	
retrograde	3494 Mar 30 09:22	25° <del>2</del> 48'01		opposition	3501 Jul 16 12:32	24° <del>3</del> 45'46	0°-26'-58
opposition	3494 Jun 13 13:04	23° <del>2</del> 47'22	0°-1'-22	min. Earth dist.	3501 Jul 16 02:10	24° <del>3</del> 46'49	18.24578 AU
min. Earth dist.	3494 Jun 13 15:33	23° <del>2</del> 47'06	17.77734 AU	direct	3501 Oct 01 17:12	22° <del>3</del> 45'05	
direct	3494 Aug 29 17:55	21° <del>2</del> 43'54					
				conjunction	3502 Jan 18 04:11	26° <del>3</del> 55'04	0°-25'-45
conjunction	3494 Dec 18 01:29	26° <del>2</del> 04'16	0°-3'-6	minimum elong	3502 Jan 18 04:11	26° <del>3</del> 55'04	0°25'45
minimum elong	3494 Dec 18 01:28	26° <del>2</del> 04'16	0°03'06	max. Earth dist.	3502 Jan 18 15:05	26° <del>3</del> 56'42	20.27984 AU
behind sun begin	3494 Dec 17 18:55	26° <del>2</del> 03'17			3502 Mar 16 14:45	0° <del>≈</del>	
behind sun end	3494 Dec 18 08:01	26° <del>2</del> 05'15		retrograde	3502 May 05 19:07	1° <del>≈</del> 03'31	
max. Earth dist.	3494 Dec 18 00:07	26° <del>2</del> 04'06	19.80781 AU		3502 Jun 27 11:42	30° <del>R</del> <del>3</del>	
	3495 Mar 08 18:22	0° <del>3</del>		opposition	3502 Jul 21 06:40	29° <del>3</del> 04'09	0°-30'-4
retrograde	3495 Apr 04 04:22	0° <del>3</del> 18'48		min. Earth dist.	3502 Jul 20 20:03	29° <del>3</del> 05'13	18.31336 AU
	3495 May 01 04:04	30° <del>R</del> <del>2</del>		direct	3502 Oct 06 09:10	27° <del>3</del> 03'50	
opposition	3495 Jun 18 11:26	28° <del>2</del> 18'17	0°-5'-18		3503 Jan 02 07:41	0° <del>≈</del>	
min. Earth dist.	3495 Jun 18 11:19	28° <del>2</del> 18'18	17.83867 AU				
direct	3495 Sep 03 17:13	26° <del>2</del> 15'10		conjunction	3503 Jan 22 15:08	1° <del>≈</del> 12'21	0°-28'-28
	3495 Dec 13 12:47	0° <del>3</del>		minimum elong	3503 Jan 22 15:08	1° <del>≈</del> 12'21	0°28'29
				max. Earth dist.	3503 Jan 23 02:53	1° <del>≈</del> 14'06	20.34655 AU
conjunction	3495 Dec 22 18:05	0° <del>3</del> 34'04	0°-6'-37	retrograde	3503 May 10 09:46	5° <del>≈</del> 19'59	
minimum elong	3495 Dec 22 18:05	0° <del>3</del> 34'04	0°06'38	opposition	3503 Jul 25 23:54	3° <del>≈</del> 20'43	0°-32'-59
behind sun begin	3495 Dec 22 11:55	0° <del>3</del> 33'08		min. Earth dist.	3503 Jul 25 11:02	3° <del>≈</del> 22'01	18.37905 AU
behind sun end	3495 Dec 23 00:16	0° <del>3</del> 34'59		direct	3503 Oct 11 02:48	1° <del>≈</del> 20'44	
max. Earth dist.	3495 Dec 22 18:22	0° <del>3</del> 34'06	19.87067 AU				
retrograde	3496 Apr 07 21:22	4° <del>3</del> 47'42		conjunction	3504 Jan 27 01:31	5° <del>≈</del> 27'49	0°-31'00
opposition	3496 Jun 22 09:06	2° <del>3</del> 47'20	0°-9'-12	minimum elong	3504 Jan 27 01:31	5° <del>≈</del> 27'49	0°31'01
min. Earth dist.	3496 Jun 22 07:47	2° <del>3</del> 47'28	17.90305 AU	max. Earth dist.	3504 Jan 27 14:52	5° <del>≈</del> 29'49	20.41102 AU
direct	3496 Sep 07 13:43	0° <del>3</del> 44'35		retrograde	3504 May 13 21:02	9° <del>≈</del> 34'39	

























































































































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min. Earth dist.	3504 Jul 29 03:31	7° $\approx$ 36'46	18.44241 AU	max. Earth dist.	3512 Feb 29 11:04	8° $\times$ 35'10	20.85129 AU
direct	3504 Oct 14 17:25	5° $\approx$ 35'48		retrograde	3512 Jun 16 08:00	12° $\times$ 34'01	
				min. Earth dist.	3512 Sep 01 05:58	10° $\times$ 37'22	18.87414 AU
conjunction	3505 Jan 30 11:05	9° $\approx$ 41'27	0°-33'-22	opposition	3512 Sep 02 03:11	10° $\times$ 35'15	0°-49'-4
minimum elong	3505 Jan 30 11:05	9° $\approx$ 41'27	0°33'23	direct	3512 Nov 17 13:08	8° $\times$ 37'51	
max. Earth dist.	3505 Jan 31 00:59	9° $\approx$ 43'32	20.47323 AU				
retrograde	3505 May 18 10:10	13° $\approx$ 47'31		conjunction	3513 Mar 03 18:14	12° $\times$ 34'26	0°-44'-40
opposition	3505 Aug 03 08:09	11° $\approx$ 48'22	0°-38'-11	minimum elong	3513 Mar 03 18:14	12° $\times$ 34'26	0°44'41
min. Earth dist.	3505 Aug 02 17:09	11° $\approx$ 49'53	18.50344 AU	max. Earth dist.	3513 Mar 04 16:20	12° $\times$ 37'39	20.89555 AU
direct	3505 Oct 19 08:58	9° $\approx$ 48'59		retrograde	3513 Jun 20 18:11	16° $\times$ 36'13	
				opposition	3513 Sep 06 13:56	14° $\times$ 37'31	0°-49'-39
conjunction	3506 Feb 03 19:50	13° $\approx$ 53'16	0°-35'-31	min. Earth dist.	3513 Sep 05 15:38	14° $\times$ 39'44	18.91662 AU
minimum elong	3506 Feb 03 19:50	13° $\approx$ 53'16	0°35'32	direct	3513 Nov 21 21:47	12° $\times$ 40'24	
max. Earth dist.	3506 Feb 04 11:37	13° $\approx$ 55'36	20.53304 AU				
	3506 Feb 22 17:44	15° $\approx$		conjunction	3514 Mar 07 23:32	16° $\times$ 36'12	0°-45'-6
retrograde	3506 May 22 20:31	17° $\approx$ 58'36		minimum elong	3514 Mar 07 23:32	16° $\times$ 36'12	0°45'07
opposition	3506 Aug 07 23:20	15° $\approx$ 59'28	0°-40'-27	max. Earth dist.	3514 Mar 08 23:00	16° $\times$ 39'36	20.93594 AU
min. Earth dist.	3506 Aug 07 08:08	16° $\approx$ 01'00	18.56226 AU	retrograde	3514 Jun 25 02:34	20° $\times$ 37'42	
	3506 Sep 02 16:04	15° $\approx$		min. Earth dist.	3514 Sep 10 02:22	18° $\times$ 41'15	18.95491 AU
direct	3506 Oct 23 22:08	14° $\approx$ 00'21		opposition	3514 Sep 11 00:17	18° $\times$ 39'03	0°-50'00
	3506 Dec 11 21:15	15° $\approx$		direct	3514 Nov 26 05:29	16° $\times$ 42'11	
conjunction	3507 Feb 08 03:56	18° $\approx$ 03'18	0°-37'-28	conjunction	3515 Mar 12 04:45	20° $\times$ 37'16	0°-45'-19
minimum elong	3507 Feb 08 03:56	18° $\approx$ 03'18	0°37'29	minimum elong	3515 Mar 12 04:45	20° $\times$ 37'16	0°45'20
max. Earth dist.	3507 Feb 08 20:17	18° $\approx$ 05'43	20.59091 AU	max. Earth dist.	3515 Mar 13 03:30	20° $\times$ 40'33	20.97200 AU
retrograde	3507 May 27 08:07	22° $\approx$ 07'56		retrograde	3515 Jun 29 12:11	24° $\times$ 38'31	
opposition	3507 Aug 12 13:29	20° $\approx$ 08'50	0°-42'-29	min. Earth dist.	3515 Sep 14 11:34	22° $\times$ 42'09	18.98860 AU
min. Earth dist.	3507 Aug 11 20:09	20° $\approx$ 10'34	18.61927 AU	opposition	3515 Sep 15 09:58	22° $\times$ 39'55	0°-50'-6
direct	3507 Oct 28 11:27	18° $\approx$ 09'58		direct	3515 Nov 30 12:37	20° $\times$ 43'15	
conjunction	3508 Feb 12 11:30	22° $\approx$ 11'40	0°-39'-13	conjunction	3516 Mar 15 09:59	24° $\times$ 37'42	0°-45'-19
minimum elong	3508 Feb 12 11:29	22° $\approx$ 11'40	0°39'14	minimum elong	3516 Mar 15 09:58	24° $\times$ 37'42	0°45'19
max. Earth dist.	3508 Feb 13 05:45	22° $\approx$ 14'22	20.64690 AU	max. Earth dist.	3516 Mar 16 09:34	24° $\times$ 41'06	21.00299 AU
retrograde	3508 May 30 17:34	26° $\approx$ 15'41		retrograde	3516 Jul 02 20:02	28° $\times$ 38'44	
min. Earth dist.	3508 Aug 15 09:30	24° $\approx$ 18'23	18.67446 AU	opposition	3516 Sep 18 19:26	26° $\times$ 40'08	0°-49'-58
opposition	3508 Aug 16 03:06	24° $\approx$ 16'36	0°-44'-17	min. Earth dist.	3516 Sep 17 21:38	26° $\times$ 42'19	19.01692 AU
direct	3508 Oct 31 22:36	22° $\approx$ 18'02		direct	3516 Dec 03 20:25	24° $\times$ 43'38	
conjunction	3509 Feb 15 18:21	26° $\approx$ 18'32	0°-40'-44	conjunction	3517 Mar 19 14:52	28° $\times$ 37'29	0°-45'-5
minimum elong	3509 Feb 15 18:21	26° $\approx$ 18'32	0°40'45	minimum elong	3517 Mar 19 14:52	28° $\times$ 37'29	0°45'07
max. Earth dist.	3509 Feb 16 13:01	26° $\approx$ 21'17	20.70122 AU	max. Earth dist.	3517 Mar 20 13:23	28° $\times$ 40'44	21.02865 AU
	3509 May 05 11:27	0° $\times$			3517 Apr 12 23:09	0° $\gamma$	
retrograde	3509 Jun 04 04:22	0° $\times$ 21'59		retrograde	3517 Jul 07 05:25	2° $\gamma$ 38'23	
	3509 Jul 04 13:43	30° $\approx$		min. Earth dist.	3517 Sep 22 06:29	0° $\gamma$ 41'56	19.03984 AU
opposition	3509 Aug 20 15:59	28° $\approx$ 22'58	0°-45'-50	opposition	3517 Sep 23 04:31	0° $\gamma$ 39'44	0°-49'-35
min. Earth dist.	3509 Aug 19 20:22	28° $\approx$ 24'56	18.72791 AU		3517 Oct 10 02:46	30° $\approx$	
direct	3509 Nov 05 10:03	26° $\approx$ 24'41		direct	3517 Dec 08 02:49	28° $\times$ 43'19	
	3510 Feb 13 04:27	0° $\times$			3518 Feb 02 05:05	0° $\gamma$	
conjunction	3510 Feb 20 00:54	0° $\times$ 24'06	0°-42'-3	conjunction	3518 Mar 23 19:55	2° $\gamma$ 36'40	0°-44'-38
minimum elong	3510 Feb 20 00:54	0° $\times$ 24'06	0°42'04	minimum elong	3518 Mar 23 19:55	2° $\gamma$ 36'40	0°44'39
max. Earth dist.	3510 Feb 20 21:27	0° $\times$ 27'07	20.75361 AU	max. Earth dist.	3518 Mar 24 19:08	2° $\gamma$ 40'00	21.04878 AU
retrograde	3510 Jun 08 13:07	4° $\times$ 27'03		retrograde	3518 Jul 11 12:24	6° $\gamma$ 37'26	
min. Earth dist.	3510 Aug 24 08:33	2° $\times$ 30'05	18.77929 AU	opposition	3518 Sep 27 13:06	4° $\gamma$ 38'42	0°-48'-58
opposition	3510 Aug 25 04:22	2° $\times$ 28'06	0°-47'-9	min. Earth dist.	3518 Sep 26 15:42	4° $\gamma$ 40'50	19.05728 AU
direct	3510 Nov 09 19:14	0° $\times$ 30'07		direct	3518 Dec 12 10:12	2° $\gamma$ 42'21	
conjunction	3511 Feb 24 06:55	4° $\times$ 28'30	0°-43'-9	conjunction	3519 Mar 28 00:43	6° $\gamma$ 35'14	0°-43'-58
minimum elong	3511 Feb 24 06:54	4° $\times$ 28'30	0°43'09	minimum elong	3519 Mar 28 00:43	6° $\gamma$ 35'14	0°44'00
max. Earth dist.	3511 Feb 25 03:36	4° $\times$ 31'32	20.80387 AU	max. Earth dist.	3519 Mar 28 22:45	6° $\gamma$ 38'24	21.06376 AU
retrograde	3511 Jun 12 23:45	8° $\times$ 31'01		retrograde	3519 Jul 15 21:29	10° $\gamma$ 35'55	
opposition	3511 Aug 29 16:03	6° $\times$ 32'08	0°-48'-14	opposition	3519 Oct 01 21:16	8° $\gamma$ 37'04	0°-48'-7
min. Earth dist.	3511 Aug 28 18:42	6° $\times$ 34'17	18.82827 AU	min. Earth dist.	3519 Sep 30 23:51	8° $\gamma$ 39'12	19.06982 AU
direct	3511 Nov 14 05:12	4° $\times$ 34'27		direct	3519 Dec 16 16:13	6° $\gamma$ 40'43	
conjunction	3512 Feb 28 12:45	8° $\times$ 31'55	0°-44'-1	conjunction	3520 Mar 31 05:36	10° $\gamma$ 33'16	0°-43'-6

minimum elong	3520 Mar 31 05:36	10°♈33'16	0°43'07	minimum elong	3528 May 02 03:25	12°♏17'50	0°29'16
max. Earth dist.	3520 Apr 01 04:23	10°♈36'32	21.07388 AU	max. Earth dist.	3528 May 02 21:53	12°♏20'28	21.01238 AU
retrograde	3520 Jul 19 03:50	14°♈33'54			3528 Jun 22 20:16	15°♏	
min. Earth dist.	3520 Oct 04 08:08	12°♈37'02	19.07773 AU	retrograde	3528 Aug 20 23:12	16°♏20'38	
opposition	3520 Oct 05 05:02	12°♈34'57	0°-47'-2		3528 Oct 21 06:41	15°♏♏	
direct	3520 Dec 19 22:29	10°♈38'37		opposition	3528 Nov 06 13:39	14°♏21'08	0°-30'-55
				min. Earth dist.	3528 Nov 05 21:51	14°♏22'44	18.99950 AU
conjunction	3521 Apr 04 10:23	14°♈30'53	0°-42'-1	direct	3529 Jan 20 15:37	12°♏24'36	
minimum elong	3521 Apr 04 10:23	14°♈30'53	0°42'02		3529 Apr 13 04:42	15°♏	
max. Earth dist.	3521 Apr 05 08:05	14°♈33'59	21.07984 AU				
retrograde	3521 Jul 23 12:42	18°♈31'34		conjunction	3529 May 06 11:05	16°♏18'26	0°-26'-45
opposition	3521 Oct 09 12:35	16°♈32'29	0°-45'-43	minimum elong	3529 May 06 11:05	16°♏18'26	0°26'47
min. Earth dist.	3521 Oct 08 15:41	16°♈34'35	19.08175 AU	max. Earth dist.	3529 May 07 03:07	16°♏20'44	20.98499 AU
direct	3521 Dec 24 04:00	14°♈36'08		retrograde	3529 Aug 25 08:38	20°♏21'46	
				opposition	3529 Nov 10 20:53	18°♏22'09	0°-28'-6
conjunction	3522 Apr 08 15:22	18°♈28'16	0°-40'-44	min. Earth dist.	3529 Nov 10 06:34	18°♏23'37	18.96944 AU
minimum elong	3522 Apr 08 15:22	18°♈28'16	0°40'46	direct	3530 Jan 24 20:43	16°♏25'28	
max. Earth dist.	3522 Apr 09 13:51	18°♈31'28	21.08185 AU				
retrograde	3522 Jul 27 19:17	22°♈29'02		conjunction	3530 May 10 19:27	20°♏19'55	0°-24'-8
opposition	3522 Oct 13 19:52	20°♈29'52	0°-44'-12	minimum elong	3530 May 10 19:27	20°♏19'55	0°24'08
min. Earth dist.	3522 Oct 12 23:28	20°♈31'55	19.08183 AU	max. Earth dist.	3530 May 11 10:59	20°♏22'08	20.95218 AU
direct	3522 Dec 28 09:11	18°♈33'32		retrograde	3530 Aug 29 18:09	24°♏23'46	
				opposition	3530 Nov 15 04:12	22°♏24'03	0°-25'-7
conjunction	3523 Apr 12 20:30	22°♈25'35	0°-39'-16	min. Earth dist.	3530 Nov 14 15:06	22°♏25'23	18.93382 AU
minimum elong	3523 Apr 12 20:30	22°♈25'35	0°39'16	direct	3531 Jan 29 03:29	20°♏27'10	
max. Earth dist.	3523 Apr 13 17:40	22°♈28'36	21.08016 AU				
retrograde	3523 Aug 01 04:00	26°♈26'32		conjunction	3531 May 15 04:15	24°♏22'16	0°-21'-22
min. Earth dist.	3523 Oct 17 06:45	24°♈29'18	19.07828 AU	minimum elong	3531 May 15 04:15	24°♏22'16	0°21'23
opposition	3523 Oct 18 02:49	24°♈27'17	0°-42'-28	max. Earth dist.	3531 May 15 17:05	24°♏24'06	20.91406 AU
direct	3524 Jan 01 14:16	22°♈30'56		retrograde	3531 Sep 03 04:13	28°♏26'42	
				opposition	3531 Nov 19 11:34	26°♏26'47	0°-22'00
conjunction	3524 Apr 16 01:58	26°♈23'03	0°-37'-36	min. Earth dist.	3531 Nov 19 00:11	26°♏27'57	18.89317 AU
minimum elong	3524 Apr 16 01:58	26°♈23'03	0°37'38	direct	3532 Feb 02 09:18	24°♏29'39	
max. Earth dist.	3524 Apr 16 23:43	26°♈26'09	21.07468 AU				
	3524 Jul 03 16:36	0°♏		conjunction	3532 May 18 13:42	28°♏25'29	0°-18'-29
retrograde	3524 Aug 04 11:25	0°♏24'14		minimum elong	3532 May 18 13:42	28°♏25'29	0°18'30
	3524 Sep 05 17:25	30°♏♈		max. Earth dist.	3532 May 19 02:07	28°♏27'16	20.87108 AU
opposition	3524 Oct 21 09:49	28°♈24'56	0°-40'-32		3532 Jun 15 16:53	0°♏	
min. Earth dist.	3524 Oct 20 14:19	28°♈26'54	19.07085 AU	retrograde	3532 Sep 06 13:47	2°♏30'30	
direct	3525 Jan 04 19:03	26°♈28'35		opposition	3532 Nov 22 19:08	0°♏30'25	0°-18'-45
	3525 Apr 14 05:28	0°♏		min. Earth dist.	3532 Nov 22 08:48	0°♏31'29	18.84796 AU
					3532 Dec 05 07:16	30°♏♏	
conjunction	3525 Apr 20 07:29	0°♏20'50	0°-35'-46	direct	3533 Feb 05 16:23	28°♏33'01	
minimum elong	3525 Apr 20 07:29	0°♏20'50	0°35'47		3533 Apr 06 05:58	0°♏	
max. Earth dist.	3525 Apr 21 03:46	0°♏23'44	21.06547 AU				
retrograde	3525 Aug 08 20:18	4°♏22'21		conjunction	3533 May 22 23:27	2°♏29'38	0°-15'-30
opposition	3525 Oct 25 16:49	2°♏22'59	0°-38'-24	minimum elong	3533 May 22 23:27	2°♏29'38	0°15'32
min. Earth dist.	3525 Oct 24 21:55	2°♏24'54	19.05967 AU	behind sun begin	3533 May 22 21:57	2°♏29'25	
direct	3526 Jan 08 23:52	0°♏26'37		behind sun end	3533 May 23 00:57	2°♏29'50	
				max. Earth dist.	3533 May 23 09:21	2°♏31'03	20.82404 AU
conjunction	3526 Apr 24 13:43	4°♏19'08	0°-33'-45	retrograde	3533 Sep 11 00:35	6°♏35'18	
minimum elong	3526 Apr 24 13:43	4°♏19'08	0°33'47	opposition	3533 Nov 27 02:57	4°♏35'00	0°-15'-24
max. Earth dist.	3526 Apr 25 10:17	4°♏22'04	21.05222 AU	min. Earth dist.	3533 Nov 26 18:18	4°♏35'53	18.79911 AU
retrograde	3526 Aug 13 04:54	8°♏21'01		direct	3534 Feb 09 22:48	2°♏37'16	
opposition	3526 Oct 29 23:38	6°♏21'37	0°-36'-5				
min. Earth dist.	3526 Oct 29 05:37	6°♏23'26	19.04425 AU	conjunction	3534 May 27 10:10	6°♏34'47	0°-12'-26
direct	3527 Jan 13 04:58	4°♏25'14		minimum elong	3534 May 27 10:10	6°♏34'47	0°12'27
				behind sun begin	3534 May 27 05:51	6°♏34'11	
conjunction	3527 Apr 28 20:17	8°♏18'06	0°-31'-35	behind sun end	3534 May 27 14:28	6°♏35'24	
minimum elong	3527 Apr 28 20:17	8°♏18'06	0°31'36	max. Earth dist.	3534 May 27 19:45	6°♏36'09	20.77351 AU
max. Earth dist.	3527 Apr 29 14:52	8°♏20'45	21.03472 AU	retrograde	3534 Sep 15 11:07	10°♏41'07	
retrograde	3527 Aug 17 13:52	12°♏20'25		opposition	3534 Dec 01 10:46	8°♏40'37	0°-11'-57
opposition	3527 Nov 03 06:37	10°♏20'58	0°-33'-35	min. Earth dist.	3534 Dec 01 03:05	8°♏41'25	18.74703 AU
min. Earth dist.	3527 Nov 02 13:42	10°♏22'41	19.02442 AU	direct	3535 Feb 14 06:24	6°♏42'34	
direct	3528 Jan 17 09:37	8°♏24'31					
				conjunction	3535 May 31 21:22	10°♏41'03	0°-9'-18
conjunction	3528 May 02 03:25	12°♏17'50	0°-29'-15	minimum elong	3535 May 31 21:23	10°♏41'03	0°09'18

behind sun begin	3535 May 31 15:46	10°II40'16		retrograde	3541 Oct 15 10:20	10°☾01'37	
behind sun end	3535 Jun 01 02:59	10°II41'50		opposition	3541 Dec 30 06:05	8°☾00'10	0°13'23
max. Earth dist.	3535 Jun 01 04:23	10°II42'02	20.72017 AU	min. Earth dist.	3541 Dec 30 08:45	7°☾59'53	18.33086 AU
retrograde	3535 Sep 19 22:37	14°II48'06		direct	3542 Mar 14 20:47	5°☾59'52	
opposition	3535 Dec 05 19:06	12°II47'24	0°-8'-26				
min. Earth dist.	3535 Dec 05 13:08	12°II48'01	18.69251 AU	conjunction	3542 Jul 01 03:12	10°☾07'13	0°13'42
direct	3536 Feb 18 13:10	10°II49'01		minimum elong	3542 Jul 01 03:12	10°☾07'13	0°13'43
				behind sun begin	3542 Jun 30 23:44	10°☾06'43	
conjunction	3536 Jun 04 09:17	14°II48'33	0°-6'-6	behind sun end	3542 Jul 01 06:39	10°☾07'43	
minimum elong	3536 Jun 04 09:17	14°II48'33	0°06'07	max. Earth dist.	3542 Jun 30 23:45	10°☾06'43	20.29841 AU
behind sun begin	3536 Jun 04 02:55	14°II47'39		retrograde	3542 Oct 20 03:01	14°☾20'13	
behind sun end	3536 Jun 04 15:39	14°II49'27		opposition	3543 Jan 03 17:47	12°☾18'40	0°16'59
max. Earth dist.	3536 Jun 04 16:04	14°II49'30	20.66453 AU	min. Earth dist.	3543 Jan 03 21:23	12°☾18'17	18.26512 AU
retrograde	3536 Sep 23 10:49	18°II56'21		direct	3543 Mar 19 09:03	10°☾18'01	
opposition	3536 Dec 09 03:43	16°II55'29	0°-4'-51				
min. Earth dist.	3536 Dec 08 22:28	16°II56'02	18.63585 AU	conjunction	3543 Jul 05 21:25	14°☾26'50	0°16'55
direct	3537 Feb 21 21:45	14°II56'47		minimum elong	3543 Jul 05 21:25	14°☾26'50	0°16'54
				max. Earth dist.	3543 Jul 05 14:51	14°☾25'53	20.23179 AU
conjunction	3537 Jun 08 21:56	18°II57'25	0°-2'-51	retrograde	3543 Oct 24 19:30	18°☾40'45	
minimum elong	3537 Jun 08 21:58	18°II57'25	0°02'51	opposition	3544 Jan 08 06:24	16°☾39'03	0°20'30
behind sun begin	3537 Jun 08 15:16	18°II56'29		min. Earth dist.	3544 Jan 08 12:31	16°☾38'24	18.19778 AU
behind sun end	3537 Jun 09 04:40	18°II58'22		direct	3544 Mar 22 21:09	14°☾38'00	
max. Earth dist.	3537 Jun 09 02:08	18°II57'59	20.60708 AU				
retrograde	3537 Sep 27 23:26	23°II06'01		conjunction	3544 Jul 09 16:28	18°☾48'19	0°20'03
opposition	3537 Dec 13 12:46	21°II05'00	0°-1'-14	minimum elong	3544 Jul 09 16:28	18°☾48'19	0°20'03
min. Earth dist.	3537 Dec 13 09:22	21°II05'21	18.57766 AU	max. Earth dist.	3544 Jul 09 08:52	18°☾47'12	20.16376 AU
direct	3538 Feb 26 05:14	19°II05'58		retrograde	3544 Oct 28 13:30	23°☾03'07	
asc. node	3538 Apr 18 09:06	20°II11'50		opposition	3545 Jan 11 19:29	21°☾01'16	0°23'57
				min. Earth dist.	3545 Jan 12 02:19	21°☾00'32	18.12914 AU
conjunction	3538 Jun 13 11:40	23°II07'49	0°00'31	direct	3545 Mar 27 11:38	18°☾59'48	
minimum elong	3538 Jun 13 11:40	23°II07'49	0°00'30				
behind sun begin	3538 Jun 13 04:58	23°II06'52		conjunction	3545 Jul 14 12:25	23°☾11'37	0°23'05
behind sun end	3538 Jun 13 18:22	23°II08'46		minimum elong	3545 Jul 14 12:25	23°☾11'37	0°23'04
max. Earth dist.	3538 Jun 13 15:28	23°II08'19	20.54815 AU	max. Earth dist.	3545 Jul 14 02:01	23°☾10'04	20.09473 AU
retrograde	3538 Oct 02 13:26	27°II17'14		retrograde	3545 Nov 02 06:26	27°☾27'16	
opposition	3538 Dec 17 22:13	25°II16'05	0°02'25	opposition	3546 Jan 16 09:11	25°☾25'15	0°27'16
min. Earth dist.	3538 Dec 17 19:34	25°II16'22	18.51797 AU	min. Earth dist.	3546 Jan 16 18:34	25°☾24'15	18.06000 AU
direct	3539 Mar 02 14:44	23°II16'45		direct	3546 Apr 01 00:59	23°☾23'22	
conjunction	3539 Jun 18 02:02	27°II19'53	0°03'53	conjunction	3546 Jul 19 09:18	27°☾36'42	0°26'00
minimum elong	3539 Jun 18 02:01	27°II19'52	0°03'53	minimum elong	3546 Jul 19 09:18	27°☾36'41	0°26'00
behind sun begin	3539 Jun 17 19:22	27°II18'56		max. Earth dist.	3546 Jul 18 21:49	27°☾34'59	20.02560 AU
behind sun end	3539 Jun 18 08:40	27°II20'49			3546 Aug 30 14:36	0°♂	
max. Earth dist.	3539 Jun 18 03:04	27°II19'59	20.48785 AU	retrograde	3546 Nov 07 01:35	1°♂53'12	
	3539 Aug 06 12:53	0°☾			3547 Jan 17 11:42	30°♂☾	
retrograde	3539 Oct 07 03:22	1°☾30'10		opposition	3547 Jan 20 23:26	29°☾51'00	0°30'27
	3539 Dec 09 20:29	30°♂II		min. Earth dist.	3547 Jan 21 09:18	29°☾49'57	17.99102 AU
opposition	3539 Dec 22 08:16	29°II28'55	0°06'05	direct	3547 Apr 05 17:30	27°☾48'41	
min. Earth dist.	3539 Dec 22 07:41	29°II28'58	18.45705 AU		3547 Jun 18 13:32	0°♂	
direct	3540 Mar 05 23:40	27°II29'15					
	3540 May 25 09:27	0°☾		conjunction	3547 Jul 24 06:42	2°♂03'31	0°28'47
conjunction	3540 Jun 21 17:28	1°☾33'44	0°07'10	minimum elong	3547 Jul 24 06:42	2°♂03'31	0°28'47
minimum elong	3540 Jun 21 17:28	1°☾33'44	0°07'10	max. Earth dist.	3547 Jul 23 17:03	2°♂01'28	19.95691 AU
behind sun begin	3540 Jun 21 11:17	1°☾32'52		retrograde	3547 Nov 11 19:03	6°♂20'51	
behind sun end	3540 Jun 21 23:40	1°☾34'37		opposition	3548 Jan 25 14:28	4°♂18'30	0°33'28
max. Earth dist.	3540 Jun 21 17:59	1°☾33'48	20.42627 AU	min. Earth dist.	3548 Jan 26 02:37	4°♂17'12	17.92303 AU
retrograde	3540 Oct 10 18:50	5°☾44'55		direct	3548 Apr 09 08:26	2°♂15'44	
opposition	3540 Dec 25 18:47	3°☾43'35	0°09'45				
min. Earth dist.	3540 Dec 25 19:01	3°☾43'33	18.39472 AU	conjunction	3548 Jul 28 04:58	6°♂32'05	0°31'24
direct	3541 Mar 10 10:08	1°☾43'37		minimum elong	3548 Jul 28 04:58	6°♂32'05	0°31'24
				max. Earth dist.	3548 Jul 27 14:18	6°♂29'53	19.88972 AU
conjunction	3541 Jun 26 09:42	5°☾49'30	0°10'27	retrograde	3548 Nov 15 15:05	10°♂50'14	
minimum elong	3541 Jun 26 09:42	5°☾49'30	0°10'27	opposition	3549 Jan 29 05:55	8°♂47'43	0°36'17
behind sun begin	3541 Jun 26 04:28	5°☾48'46		min. Earth dist.	3549 Jan 29 18:17	8°♂46'23	17.85682 AU
behind sun end	3541 Jun 26 14:56	5°☾50'15		direct	3549 Apr 14 02:57	6°♂44'32	
max. Earth dist.	3541 Jun 26 07:15	5°☾49'10	20.36320 AU	max. Earth dist.	3549 Aug 01 11:43	10°♂59'57	19.82453 AU

conjunction	3549 Aug 02 03:59	11°♏02'24	0°33'51	direct	3557 May 20 23:31	13°♐38'16	
minimum elong	3549 Aug 02 03:58	11°♏02'24	0°33'51				
	3549 Oct 23 03:31	15°♏		conjunction	3557 Sep 09 19:53	18°♐06'36	0°44'59
retrograde	3549 Nov 20 09:25	15°♏21'19		minimum elong	3557 Sep 09 19:53	18°♐06'36	0°44'59
	3549 Dec 18 22:20	15°♐♏		max. Earth dist.	3557 Sep 08 20:42	18°♐03'00	19.42690 AU
opposition	3550 Feb 02 22:20	13°♏18'41	0°38'54	retrograde	3557 Dec 27 22:24	22°♐30'13	
min. Earth dist.	3550 Feb 03 12:44	13°♏17'07	17.79302 AU	opposition	3558 Mar 11 11:07	20°♐27'29	0°50'15
direct	3550 Apr 18 19:27	11°♏15'06		min. Earth dist.	3558 Mar 12 07:29	20°♐25'15	17.41007 AU
	3550 Jul 28 16:21	15°♏		direct	3558 May 25 23:27	18°♐21'49	
max. Earth dist.	3550 Aug 06 10:18	15°♏31'48	19.76217 AU				
				conjunction	3558 Sep 14 23:52	22°♐51'02	0°45'07
conjunction	3550 Aug 07 03:43	15°♏34'26	0°36'05	minimum elong	3558 Sep 14 23:52	22°♐51'02	0°45'07
minimum elong	3550 Aug 07 03:42	15°♏34'26	0°36'05	max. Earth dist.	3558 Sep 13 22:58	22°♐47'10	19.39346 AU
retrograde	3550 Nov 25 06:46	19°♏54'07		retrograde	3559 Jan 01 21:47	27°♐14'56	
opposition	3551 Feb 07 15:13	17°♏51'23	0°41'18	opposition	3559 Mar 16 09:46	25°♐12'10	0°50'15
min. Earth dist.	3551 Feb 08 05:35	17°♏49'49	17.73230 AU	min. Earth dist.	3559 Mar 17 06:29	25°♐09'54	17.37874 AU
direct	3551 Apr 23 16:00	15°♏47'26		direct	3559 May 31 00:49	23°♐06'17	
max. Earth dist.	3551 Aug 11 09:51	20°♏05'27	19.70309 AU	max. Earth dist.	3559 Sep 19 04:07	27°♐32'32	19.36425 AU
conjunction	3551 Aug 12 04:09	20°♏08'14	0°38'07	conjunction	3559 Sep 20 04:10	27°♐36'18	0°44'57
minimum elong	3551 Aug 12 04:09	20°♏08'14	0°38'07	minimum elong	3559 Sep 20 04:10	27°♐36'18	0°44'58
retrograde	3551 Nov 30 02:29	24°♏28'38			3559 Oct 30 11:51	0°♎	
opposition	3552 Feb 12 09:05	22°♏25'51	0°43'27	retrograde	3560 Jan 06 22:07	2°♎00'21	
min. Earth dist.	3552 Feb 13 01:09	22°♏24'06	17.67517 AU		3560 Mar 19 11:01	30°♐♐	
direct	3552 Apr 27 10:02	20°♏21'36		opposition	3560 Mar 20 08:55	29°♐57'36	0°49'54
max. Earth dist.	3552 Aug 15 09:33	24°♏40'49	19.64794 AU	min. Earth dist.	3560 Mar 21 05:45	29°♐55'19	17.35177 AU
				direct	3560 Jun 04 02:32	27°♐51'32	
conjunction	3552 Aug 16 05:08	24°♏43'49	0°39'55		3560 Aug 15 13:28	0°♎	
minimum elong	3552 Aug 16 05:07	24°♏43'49	0°39'55	max. Earth dist.	3560 Sep 23 07:07	2°♎18'14	19.33971 AU
retrograde	3552 Dec 04 01:15	29°♏04'55					
opposition	3553 Feb 16 03:31	27°♏02'06	0°45'20	conjunction	3560 Sep 24 08:19	2°♎22'11	0°44'28
min. Earth dist.	3553 Feb 16 19:34	27°♏00'22	17.62194 AU	minimum elong	3560 Sep 24 08:19	2°♎22'11	0°44'28
direct	3553 May 02 07:36	24°♏57'34		retrograde	3561 Jan 10 21:21	6°♎46'21	
max. Earth dist.	3553 Aug 20 11:06	29°♏18'08	19.59652 AU	opposition	3561 Mar 25 08:32	4°♎43'34	0°49'12
				min. Earth dist.	3561 Mar 26 05:44	4°♎41'15	17.32979 AU
conjunction	3553 Aug 21 07:03	29°♏21'11	0°41'28	direct	3561 Jun 09 04:57	2°♎37'20	
minimum elong	3553 Aug 21 07:03	29°♏21'11	0°41'27				
	3553 Aug 31 20:37	0°♐		conjunction	3561 Sep 29 12:35	7°♎08'30	0°43'41
retrograde	3553 Dec 08 23:09	3°♐42'55		minimum elong	3561 Sep 29 12:35	7°♎08'30	0°43'41
opposition	3554 Feb 20 22:45	1°♐40'08	0°46'56	max. Earth dist.	3561 Sep 28 12:30	7°♎04'44	19.32033 AU
min. Earth dist.	3554 Feb 21 16:28	1°♐38'12	17.57246 AU	retrograde	3562 Jan 15 21:49	11°♎32'40	
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direct	3554 May 07 03:29	29°♏35'21		min. Earth dist.	3562 Mar 31 05:03	9°♎27'39	17.31308 AU
	3554 Jun 06 13:57	0°♐		direct	3562 Jun 14 08:24	7°♎23'34	
max. Earth dist.	3554 Aug 25 11:51	3°♐56'58	19.54891 AU				
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minimum elong	3554 Aug 26 09:29	4°♐00'17	0°42'47	max. Earth dist.	3562 Oct 03 16:12	11°♎51'16	19.30654 AU
retrograde	3554 Dec 13 22:55	8°♐22'37		retrograde	3563 Jan 20 20:48	16°♎19'12	
opposition	3555 Feb 25 18:45	6°♐19'52	0°48'15	opposition	3563 Apr 04 08:58	14°♎16'27	0°46'47
min. Earth dist.	3555 Feb 26 12:38	6°♐17'54	17.52669 AU	min. Earth dist.	3563 Apr 05 05:40	14°♎14'11	17.30243 AU
direct	3555 May 12 01:58	4°♐14'50		direct	3563 Jun 19 11:09	12°♎10'01	
conjunction	3555 Aug 31 12:27	8°♐41'01	0°43'48	conjunction	3563 Oct 09 20:11	16°♎41'47	0°41'12
minimum elong	3555 Aug 31 12:27	8°♐41'01	0°43'47	minimum elong	3563 Oct 09 20:11	16°♎41'47	0°41'11
max. Earth dist.	3555 Aug 30 14:52	8°♐37'41	19.50474 AU	max. Earth dist.	3563 Oct 08 21:10	16°♎38'10	19.29905 AU
retrograde	3555 Dec 18 22:23	13°♐03'52		retrograde	3564 Jan 25 21:35	21°♎05'46	
opposition	3556 Mar 01 15:37	11°♐01'07	0°49'14	opposition	3564 Apr 08 09:38	19°♎03'05	0°45'04
min. Earth dist.	3556 Mar 02 10:48	10°♐59'02	17.48429 AU	min. Earth dist.	3564 Apr 09 04:54	19°♎00'59	17.29809 AU
direct	3556 May 15 23:44	8°♐55'53		direct	3564 Jun 23 15:34	16°♎56'38	
conjunction	3556 Sep 04 15:52	13°♐23'11	0°44'32	conjunction	3564 Oct 13 23:41	21°♎28'30	0°39'32
minimum elong	3556 Sep 04 15:52	13°♐23'11	0°44'32	minimum elong	3564 Oct 13 23:41	21°♎28'30	0°39'32
max. Earth dist.	3556 Sep 03 16:21	13°♐19'33	19.46409 AU	max. Earth dist.	3564 Oct 13 01:17	21°♎24'58	19.29803 AU
retrograde	3556 Dec 22 22:13	17°♐46'29		retrograde	3565 Jan 29 20:29	25°♎52'17	
opposition	3557 Mar 06 12:57	15°♐43'44	0°49'55	opposition	3565 Apr 13 10:34	23°♎49'42	0°43'03
min. Earth dist.	3557 Mar 07 08:29	15°♐41'36	17.44545 AU	min. Earth dist.	3565 Apr 14 05:54	23°♎47'36	17.30048 AU

direct	3565 Jun 28 18:04	21° <del>2</del> 43'17		opposition	3573 May 21 22:08	1° <del>2</del> 47'19	0°18'00
max. Earth dist.	3565 Oct 18 05:34	26° <del>2</del> 11'48	19.30385 AU	min. Earth dist.	3573 May 22 08:57	1° <del>2</del> 46'10	17.51796 AU
					3573 Jul 11 14:51	30° <del>8</del> <del>1</del>	
conjunction	3565 Oct 19 02:52	26° <del>2</del> 15'09	0°37'35	direct	3573 Aug 06 21:10	29° <del>1</del> 42'31	
minimum elong	3565 Oct 19 02:52	26° <del>2</del> 15'09	0°37'35		3573 Sep 01 18:34	0° <del>2</del>	
	3565 Dec 28 14:31	0° <del>1</del>					
retrograde	3566 Feb 03 21:58	0° <del>1</del> 38'41		conjunction	3573 Nov 26 09:07	4° <del>2</del> 09'25	0°14'25
	3566 Mar 14 03:35	30° <del>8</del> <del>2</del>		minimum elong	3573 Nov 26 09:07	4° <del>2</del> 09'25	0°14'25
opposition	3566 Apr 18 11:44	28° <del>2</del> 36'15	0°40'45	behind sun begin	3573 Nov 26 06:03	4° <del>2</del> 08'57	
min. Earth dist.	3566 Apr 19 05:11	28° <del>2</del> 34'21	17.30947 AU	behind sun end	3573 Nov 26 12:11	4° <del>2</del> 09'53	
direct	3566 Jul 03 22:41	26° <del>2</del> 29'57		max. Earth dist.	3573 Nov 25 21:32	4° <del>2</del> 07'37	19.54015 AU
	3566 Oct 07 19:11	0° <del>1</del>		retrograde	3574 Mar 13 12:56	8° <del>2</del> 28'21	
max. Earth dist.	3566 Oct 23 09:42	0° <del>1</del> 58'33	19.31607 AU	opposition	3574 May 26 22:59	6° <del>2</del> 27'13	0°14'07
				min. Earth dist.	3574 May 27 07:56	6° <del>2</del> 26'16	17.56308 AU
conjunction	3566 Oct 24 05:33	1° <del>1</del> 01'40	0°35'23	direct	3574 Aug 12 00:32	4° <del>2</del> 22'38	
minimum elong	3566 Oct 24 05:34	1° <del>1</del> 01'40	0°35'23				
retrograde	3567 Feb 08 20:54	5° <del>1</del> 24'53		conjunction	3574 Dec 01 06:29	8° <del>2</del> 48'22	0°10'55
opposition	3567 Apr 23 13:16	3° <del>1</del> 22'38	0°38'09	minimum elong	3574 Dec 01 06:29	8° <del>2</del> 48'21	0°10'55
min. Earth dist.	3567 Apr 24 06:45	3° <del>1</del> 20'44	17.32481 AU	behind sun begin	3574 Dec 01 01:26	8° <del>2</del> 47'35	
direct	3567 Jul 09 00:20	1° <del>1</del> 16'30		behind sun end	3574 Dec 01 11:31	8° <del>2</del> 49'08	
				max. Earth dist.	3574 Nov 30 21:40	8° <del>2</del> 47'00	19.58688 AU
conjunction	3567 Oct 29 07:50	5° <del>1</del> 47'57	0°32'57	retrograde	3575 Mar 18 08:32	13° <del>2</del> 06'26	
minimum elong	3567 Oct 29 07:50	5° <del>1</del> 47'57	0°32'58	opposition	3575 May 31 23:27	11° <del>2</del> 05'24	0°10'10
max. Earth dist.	3567 Oct 28 12:44	5° <del>1</del> 44'56	19.33447 AU	min. Earth dist.	3575 Jun 01 07:10	11° <del>2</del> 04'35	17.61131 AU
retrograde	3568 Feb 13 22:50	10° <del>2</del> 10'46		direct	3575 Aug 17 02:40	9° <del>2</del> 01'03	
opposition	3568 Apr 27 14:38	8° <del>2</del> 08'42	0°35'19				
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direct	3568 Jul 13 04:50	6° <del>2</del> 02'45		minimum elong	3575 Dec 06 02:50	13° <del>2</del> 25'30	0°07'21
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conjunction	3568 Nov 02 09:46	10° <del>2</del> 33'49	0°30'17	behind sun end	3575 Dec 06 08:54	13° <del>2</del> 26'25	
minimum elong	3568 Nov 02 09:46	10° <del>2</del> 33'49	0°30'17	max. Earth dist.	3575 Dec 05 18:46	13° <del>2</del> 24'16	19.63682 AU
max. Earth dist.	3568 Nov 01 16:31	10° <del>2</del> 31'06	19.35819 AU	retrograde	3576 Mar 22 04:21	17° <del>2</del> 42'42	
retrograde	3569 Feb 17 21:21	14° <del>2</del> 56'09		opposition	3576 Jun 04 23:13	15° <del>2</del> 41'45	0°06'10
opposition	3569 May 02 16:23	12° <del>2</del> 54'18	0°32'13	min. Earth dist.	3576 Jun 05 05:14	15° <del>2</del> 41'07	17.66297 AU
min. Earth dist.	3569 May 03 07:56	12° <del>2</del> 52'37	17.37208 AU	direct	3576 Aug 21 03:18	13° <del>2</del> 37'37	
direct	3569 Jul 18 06:24	10° <del>2</del> 48'34					
	3569 Nov 02 10:12	15° <del>2</del>		conjunction	3576 Dec 09 22:23	18° <del>2</del> 00'46	0°03'47
conjunction	3569 Nov 07 11:00	15° <del>2</del> 19'03	0°27'26	minimum elong	3576 Dec 09 22:24	18° <del>2</del> 00'46	0°03'47
minimum elong	3569 Nov 07 11:00	15° <del>2</del> 19'03	0°27'26	behind sun begin	3576 Dec 09 15:52	17° <del>2</del> 59'46	
max. Earth dist.	3569 Nov 06 18:07	15° <del>2</del> 16'24	19.38677 AU	behind sun end	3576 Dec 10 04:56	18° <del>2</del> 01'45	
retrograde	3570 Feb 22 22:21	19° <del>2</del> 40'51		max. Earth dist.	3576 Dec 09 17:11	17° <del>2</del> 59'59	19.69018 AU
opposition	3570 May 07 17:58	17° <del>2</del> 39'10	0°28'55	retrograde	3577 Mar 26 23:33	22° <del>2</del> 17'03	
min. Earth dist.	3570 May 08 07:32	17° <del>2</del> 37'42	17.40283 AU	opposition	3577 Jun 09 22:41	20° <del>2</del> 16'13	0°02'10
direct	3570 Jul 23 11:22	15° <del>2</del> 33'39		min. Earth dist.	3577 Jun 10 02:47	20° <del>2</del> 15'47	17.71797 AU
				direct	3577 Aug 26 04:17	18° <del>2</del> 12'23	
conjunction	3570 Nov 12 11:46	20° <del>2</del> 03'27	0°24'23				
minimum elong	3570 Nov 12 11:46	20° <del>2</del> 03'27	0°24'23	conjunction	3577 Dec 14 16:47	22° <del>2</del> 34'07	0°00'08
max. Earth dist.	3570 Nov 11 21:08	20° <del>2</del> 01'09	19.41962 AU	minimum elong	3577 Dec 14 16:47	22° <del>2</del> 34'07	0°00'08
retrograde	3571 Feb 27 19:49	24° <del>2</del> 24'37		behind sun begin	3577 Dec 14 10:20	22° <del>2</del> 33'09	
opposition	3571 May 12 19:40	22° <del>2</del> 23'06	0°25'26	behind sun end	3577 Dec 14 23:14	22° <del>2</del> 35'06	
min. Earth dist.	3571 May 13 08:58	22° <del>2</del> 21'41	17.43764 AU	max. Earth dist.	3577 Dec 14 12:48	22° <del>2</del> 33'33	19.74697 AU
direct	3571 Jul 28 13:25	20° <del>2</del> 17'50		desc. node	3577 Dec 27 03:15	23° <del>2</del> 20'15	
				retrograde	3578 Mar 31 18:10	26° <del>2</del> 49'32	
conjunction	3571 Nov 17 11:33	24° <del>2</del> 46'46	0°21'11	opposition	3578 Jun 14 21:39	24° <del>2</del> 48'49	0°-1'-48
minimum elong	3571 Nov 17 11:33	24° <del>2</del> 46'46	0°21'11	min. Earth dist.	3578 Jun 15 00:02	24° <del>2</del> 48'34	17.77660 AU
max. Earth dist.	3571 Nov 16 21:10	24° <del>2</del> 44'31	19.45640 AU	direct	3578 Aug 31 02:46	22° <del>2</del> 45'18	
retrograde	3572 Mar 03 19:15	29° <del>2</del> 07'16					
opposition	3572 May 16 21:01	27° <del>2</del> 05'53	0°21'47	conjunction	3578 Dec 19 10:27	27° <del>2</del> 05'39	0°-3'-30
min. Earth dist.	3572 May 17 08:25	27° <del>2</del> 04'40	17.47617 AU	minimum elong	3578 Dec 19 10:26	27° <del>2</del> 05'39	0°03'31
direct	3572 Aug 01 18:29	25° <del>2</del> 00'51		behind sun begin	3578 Dec 19 03:54	27° <del>2</del> 04'40	
				behind sun end	3578 Dec 19 16:59	27° <del>2</del> 06'38	
conjunction	3572 Nov 21 10:50	29° <del>2</del> 28'50	0°17'51	max. Earth dist.	3578 Dec 19 09:14	27° <del>2</del> 05'31	19.80732 AU
minimum elong	3572 Nov 21 10:50	29° <del>2</del> 28'50	0°17'51		3579 Feb 08 22:56	0° <del>2</del>	
max. Earth dist.	3572 Nov 20 22:54	29° <del>2</del> 26'58	19.49663 AU	retrograde	3579 Apr 05 12:47	1° <del>2</del> 20'09	
	3572 Nov 29 17:32	0° <del>2</del>			3579 Jun 03 09:15	30° <del>8</del> <del>1</del>	
retrograde	3573 Mar 08 15:19	3° <del>2</del> 48'34		opposition	3579 Jun 19 19:56	29° <del>2</del> 19'37	0°-5'-45
				min. Earth dist.	3579 Jun 19 19:58	29° <del>2</del> 19'37	17.83844 AU



























































































































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	3579 Nov 27 17:57	0° 		minimum elong	3587 Jan 23 01:18	2°  16'03	0°28'49
				max. Earth dist.	3587 Jan 23 12:29	2°  17'44	20.33899 AU
conjunction	3579 Dec 24 03:06	1°  35'25	0°-7'00	retrograde	3587 May 10 20:24	6°  23'51	
minimum elong	3579 Dec 24 03:05	1°  35'25	0°07'01	opposition	3587 Jul 26 09:20	4°  24'36	0°-33'-22
behind sun begin	3579 Dec 23 20:58	1°  34'30		min. Earth dist.	3587 Jul 25 20:59	4°  25'51	18.37057 AU
behind sun end	3579 Dec 24 09:11	1°  36'20		direct	3587 Oct 11 11:54	2°  24'37	
max. Earth dist.	3579 Dec 24 03:15	1°  35'26	19.87063 AU				
retrograde	3580 Apr 09 06:22	5°  49'03		conjunction	3588 Jan 27 11:44	6°  31'55	0°-31'-21
opposition	3580 Jun 23 17:44	3°  48'42	0°-9'-38	minimum elong	3588 Jan 27 11:44	6°  31'55	0°31'22
min. Earth dist.	3580 Jun 23 16:28	3°  48'50	17.90308 AU	max. Earth dist.	3588 Jan 28 00:24	6°  33'49	20.40173 AU
direct	3580 Sep 08 22:46	1°  45'58		retrograde	3588 May 14 07:43	10°  38'55	
				opposition	3588 Jul 30 02:02	8°  39'43	0°-36'-4
conjunction	3580 Dec 27 18:55	6°  03'28	0°-10'-27	min. Earth dist.	3588 Jul 29 13:35	8°  40'59	18.43240 AU
minimum elong	3580 Dec 27 18:56	6°  03'28	0°10'28	direct	3588 Oct 15 03:07	6°  40'01	
behind sun begin	3580 Dec 27 13:45	6°  02'41					
behind sun end	3580 Dec 28 00:07	6°  04'14		conjunction	3589 Jan 30 21:14	10°  45'54	0°-33'-41
max. Earth dist.	3580 Dec 27 21:27	6°  03'50	19.93637 AU	minimum elong	3589 Jan 30 21:14	10°  45'54	0°33'42
retrograde	3581 Apr 14 00:07	10°  16'13		max. Earth dist.	3589 Jan 31 10:51	10°  47'55	20.46265 AU
opposition	3581 Jun 28 14:52	8°  16'05	0°-13'-26	retrograde	3589 May 18 20:51	14°  52'08	
min. Earth dist.	3581 Jun 28 11:10	8°  16'28	17.96960 AU	opposition	3589 Aug 03 17:51	12°  52'57	0°-38'-32
direct	3581 Sep 13 20:33	6°  13'47		min. Earth dist.	3589 Aug 03 03:04	12°  54'26	18.49246 AU
				direct	3589 Oct 19 18:54	10°  53'31	
conjunction	3582 Jan 01 09:56	10°  29'50	0°-13'-49				
minimum elong	3582 Jan 01 09:56	10°  29'50	0°13'49	conjunction	3590 Feb 04 06:07	14°  58'01	0°-35'-49
behind sun begin	3582 Jan 01 06:22	10°  29'18		minimum elong	3590 Feb 04 06:07	14°  58'01	0°35'50
behind sun end	3582 Jan 01 13:30	10°  30'22			3590 Feb 04 19:31	15° 	
max. Earth dist.	3582 Jan 01 13:57	10°  30'26	20.00364 AU	max. Earth dist.	3590 Feb 04 21:35	15°  00'18	20.52184 AU
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min. Earth dist.	3582 Jul 03 07:01	12°  42'17	18.03752 AU	min. Earth dist.	3590 Aug 07 18:01	17°  05'52	18.55106 AU
direct	3582 Sep 18 15:42	10°  39'56		direct	3590 Oct 24 07:52	15°  05'11	
conjunction	3583 Jan 06 00:04	14°  54'31	0°-17'-5	conjunction	3591 Feb 08 14:15	19°  08'21	0°-37'-45
minimum elong	3583 Jan 06 00:04	14°  54'31	0°17'06	minimum elong	3591 Feb 08 14:15	19°  08'21	0°37'46
max. Earth dist.	3583 Jan 06 06:00	14°  55'25	20.07190 AU	max. Earth dist.	3591 Feb 09 06:35	19°  10'46	20.57977 AU
retrograde	3583 Apr 23 09:39	19°  05'36		retrograde	3591 May 27 18:49	23°  13'10	
opposition	3583 Jul 08 07:39	17°  05'51	0°-20'-42	opposition	3591 Aug 12 23:21	21°  14'02	0°-42'-46
min. Earth dist.	3583 Jul 08 00:36	17°  06'34	18.10585 AU	min. Earth dist.	3591 Aug 12 06:01	21°  15'47	18.60832 AU
direct	3583 Sep 23 12:09	15°  04'24		direct	3591 Oct 28 21:15	19°  15'08	
conjunction	3584 Jan 10 13:31	19°  17'31	0°-20'-14	conjunction	3592 Feb 12 21:54	23°  17'04	0°-39'-28
minimum elong	3584 Jan 10 13:31	19°  17'31	0°20'15	minimum elong	3592 Feb 12 21:54	23°  17'04	0°39'28
max. Earth dist.	3584 Jan 10 20:53	19°  18'38	20.14011 AU	max. Earth dist.	3592 Feb 13 16:04	23°  19'44	20.63619 AU
retrograde	3584 Apr 27 00:52	23°  27'45		retrograde	3592 May 31 03:33	27°  21'15	
opposition	3584 Jul 12 03:04	21°  28'11	0°-24'-7	opposition	3592 Aug 16 13:01	25°  22'10	0°-44'-33
min. Earth dist.	3584 Jul 11 19:33	21°  28'57	18.17395 AU	min. Earth dist.	3592 Aug 15 19:30	25°  23'56	18.66406 AU
direct	3584 Sep 27 06:13	19°  27'09		direct	3592 Nov 01 08:30	23°  23'34	
conjunction	3585 Jan 14 02:15	23°  38'48	0°-23'-15	conjunction	3593 Feb 16 04:59	27°  24'18	0°-40'-58
minimum elong	3585 Jan 14 02:15	23°  38'48	0°23'15	minimum elong	3593 Feb 16 04:59	27°  24'18	0°40'59
max. Earth dist.	3585 Jan 14 10:59	23°  40'07	20.20783 AU	max. Earth dist.	3593 Feb 16 23:45	27°  27'04	20.69117 AU
retrograde	3585 May 01 16:39	27°  48'13			3593 Apr 04 22:56	0° 	
opposition	3585 Jul 16 21:51	25°  48'47	0°-27'-23	retrograde	3593 Jun 04 15:09	1°  11'27'55	
min. Earth dist.	3585 Jul 16 11:59	25°  49'47	18.24108 AU		3593 Aug 08 00:53	30° 	
direct	3585 Oct 02 01:17	23°  48'08		min. Earth dist.	3593 Aug 20 06:28	29°  30'52	18.71814 AU
				opposition	3593 Aug 21 02:04	29°  28'54	0°-46'-4
conjunction	3586 Jan 18 14:06	27°  58'19	0°-26'-7	direct	3593 Nov 05 19:43	27°  30'36	
minimum elong	3586 Jan 18 14:06	27°  58'19	0°26'08		3594 Jan 25 06:14	0° 	
max. Earth dist.	3586 Jan 19 00:18	27°  59'52	20.27419 AU				
	3586 Feb 22 14:26	0° 		conjunction	3594 Feb 20 11:34	1°  11'30'14	0°-42'-15
retrograde	3586 May 06 05:57	2°  06'56		minimum elong	3594 Feb 20 11:34	1°  11'30'14	0°42'15
opposition	3586 Jul 21 16:08	0°  07'37	0°-30'-28	max. Earth dist.	3594 Feb 21 08:06	1°  11'33'15	20.74411 AU
min. Earth dist.	3586 Jul 21 06:01	0°  08'38	18.30676 AU	retrograde	3594 Jun 08 23:50	5°  11'33'21	
	3586 Jul 24 18:54	30° 		opposition	3594 Aug 25 14:39	3°  11'34'24	0°-47'-21
direct	3586 Oct 06 18:28	28°  07'19		min. Earth dist.	3594 Aug 24 19:01	3°  11'36'22	18.76997 AU
	3586 Dec 14 05:58	0° 		direct	3594 Nov 10 05:45	1°  11'36'25	

conjunction	3595 Feb 24 17:50	5° <del>35</del> '00	0°-43'-18
minimum elong	3595 Feb 24 17:50	5° <del>35</del> '00	0°43'19
max. Earth dist.	3595 Feb 25 14:33	5° <del>38</del> '02	20.79470 AU
retrograde	3595 Jun 13 10:44	9° <del>37</del> '39	
min. Earth dist.	3595 Aug 29 05:09	7° <del>40</del> '55	18.81914 AU
opposition	3595 Aug 30 02:20	7° <del>38</del> '47	0°-48'-24
direct	3595 Nov 14 15:21	5° <del>41</del> '05	
conjunction	3596 Feb 28 23:50	9° <del>38</del> '44	0°-44'-9
minimum elong	3596 Feb 28 23:50	9° <del>38</del> '44	0°44'10
max. Earth dist.	3596 Feb 29 21:57	9° <del>41</del> '57	20.84217 AU
retrograde	3596 Jun 16 19:05	13° <del>40</del> '59	
opposition	3596 Sep 02 13:47	11° <del>42</del> '12	0°-49'-12
min. Earth dist.	3596 Sep 01 16:52	11° <del>44</del> '17	18.86493 AU
direct	3596 Nov 18 00:18	9° <del>44</del> '47	
conjunction	3597 Mar 04 05:24	13° <del>41</del> '32	0°-44'-46
minimum elong	3597 Mar 04 05:24	13° <del>41</del> '32	0°44'47
max. Earth dist.	3597 Mar 05 03:20	13° <del>44</del> '44	20.88613 AU
retrograde	3597 Jun 21 05:37	17° <del>43</del> '27	
min. Earth dist.	3597 Sep 06 02:35	15° <del>46</del> '56	18.90692 AU
opposition	3597 Sep 07 00:41	15° <del>44</del> '43	0°-49'-45
direct	3597 Nov 22 09:05	13° <del>47</del> '33	
conjunction	3598 Mar 08 10:59	17° <del>43</del> '32	0°-45'-10
minimum elong	3598 Mar 08 10:59	17° <del>43</del> '32	0°45'11
max. Earth dist.	3598 Mar 09 09:59	17° <del>46</del> '52	20.92583 AU
retrograde	3598 Jun 25 13:26	21° <del>45</del> '08	
opposition	3598 Sep 11 11:05	19° <del>46</del> '27	0°-50'-4
min. Earth dist.	3598 Sep 10 13:35	19° <del>48</del> '36	18.94437 AU
direct	3598 Nov 26 16:44	17° <del>49</del> '31	
conjunction	3599 Mar 12 16:22	21° <del>44</del> '45	0°-45'-21
minimum elong	3599 Mar 12 16:22	21° <del>44</del> '45	0°45'22
max. Earth dist.	3599 Mar 13 14:38	21° <del>47</del> '59	20.96088 AU
retrograde	3599 Jun 29 23:29	25° <del>46</del> '07	
opposition	3599 Sep 15 21:02	23° <del>47</del> '26	0°-50'-7
min. Earth dist.	3599 Sep 14 22:52	23° <del>49</del> '39	18.97686 AU
direct	3599 Dec 01 00:58	21° <del>50</del> '40	
conjunction	3600 Mar 15 21:37	25° <del>45</del> '16	0°-45'-18
minimum elong	3600 Mar 15 21:37	25° <del>45</del> '16	0°45'20
max. Earth dist.	3600 Mar 16 20:37	25° <del>48</del> '35	20.99060 AU
retrograde	3600 Jul 03 06:47	29° <del>46</del> '24	
min. Earth dist.	3600 Sep 18 09:09	27° <del>49</del> '51	19.00392 AU
opposition	3600 Sep 19 06:34	27° <del>47</del> '42	0°-49'-57
direct	3600 Dec 04 07:34	25° <del>51</del> '05	



conjunction	3600 Mar 15 21:37	25° <del>✕</del> 45'16	0°-45'-18	direct	3608 Jan 02 00:50	23° <del>Υ</del> 39'24	
minimum elong	3600 Mar 15 21:37	25° <del>✕</del> 45'16	0°45'20				
max. Earth dist.	3600 Mar 16 20:37	25° <del>✕</del> 48'35	20.99060 AU	conjunction	3608 Apr 16 13:36	27° <del>Υ</del> 31'43	0°-37'-19
retrograde	3600 Jul 03 06:47	29° <del>✕</del> 46'24		minimum elong	3608 Apr 16 13:36	27° <del>Υ</del> 31'43	0°37'19
min. Earth dist.	3600 Sep 18 09:09	27° <del>✕</del> 49'51	19.00392 AU	max. Earth dist.	3608 Apr 17 11:33	27° <del>Υ</del> 34'51	21.06720 AU
opposition	3600 Sep 19 06:34	27° <del>✕</del> 47'42	0°-49'-57		3608 Jun 02 02:04	0° <del>⊘</del>	
direct	3600 Dec 04 07:34	25° <del>✕</del> 51'05		retrograde	3608 Aug 04 23:20	1° <del>⊘</del> 33'05	
					3608 Oct 10 23:01	30° <del>⊘</del>	
conjunction	3601 Mar 20 02:40	29° <del>✕</del> 45'04	0°-45'-2	opposition	3608 Oct 21 21:26	29° <del>Υ</del> 33'49	0°-40'-11
minimum elong	3601 Mar 20 02:40	29° <del>✕</del> 45'04	0°45'03	min. Earth dist.	3608 Oct 21 01:45	29° <del>Υ</del> 35'48	19.06408 AU
max. Earth dist.	3601 Mar 21 00:49	29° <del>✕</del> 48'15	21.01518 AU	direct	3609 Jan 05 06:26	27° <del>Υ</del> 37'31	
	3601 Mar 24 10:15	0° <del>Υ</del>			3609 Mar 24 22:02	0° <del>⊘</del>	
retrograde	3601 Jul 07 16:00	3° <del>Υ</del> 46'02					
opposition	3601 Sep 23 15:40	1° <del>Υ</del> 47'16	0°-49'-31	conjunction	3609 Apr 20 19:22	1° <del>⊘</del> 29'57	0°-35'-27
min. Earth dist.	3601 Sep 22 17:48	1° <del>Υ</del> 49'27	19.02596 AU	minimum elong	3609 Apr 20 19:22	1° <del>⊘</del> 29'57	0°35'29
	3601 Nov 19 08:36	30° <del>⊘</del>		max. Earth dist.	3609 Apr 21 15:50	1° <del>⊘</del> 32'52	21.05935 AU
direct	3601 Dec 08 15:13	29° <del>✕</del> 50'43		retrograde	3609 Aug 09 09:06	5° <del>⊘</del> 31'38	
	3601 Dec 27 16:29	0° <del>Υ</del>		min. Earth dist.	3609 Oct 25 09:17	3° <del>⊘</del> 34'15	19.05412 AU
				opposition	3609 Oct 26 04:28	3° <del>⊘</del> 32'19	0°-38'-1
conjunction	3602 Mar 24 07:35	3° <del>Υ</del> 44'12	0°-44'-33	direct	3610 Jan 09 11:17	1° <del>⊘</del> 35'59	
minimum elong	3602 Mar 24 07:35	3° <del>Υ</del> 44'12	0°44'35				
max. Earth dist.	3602 Mar 25 06:34	3° <del>Υ</del> 47'30	21.03470 AU	conjunction	3610 Apr 25 01:39	5° <del>⊘</del> 28'40	0°-33'-24
retrograde	3602 Jul 11 23:18	7° <del>Υ</del> 45'02		minimum elong	3610 Apr 25 01:39	5° <del>⊘</del> 28'40	0°33'25
min. Earth dist.	3602 Sep 27 03:10	5° <del>Υ</del> 48'18	19.04312 AU	max. Earth dist.	3610 Apr 25 22:15	5° <del>⊘</del> 31'37	21.04712 AU
opposition	3602 Sep 28 00:20	5° <del>Υ</del> 46'11	0°-48'-51	retrograde	3610 Aug 13 16:38	9° <del>⊘</del> 30'42	
direct	3602 Dec 12 21:13	3° <del>Υ</del> 49'42		opposition	3610 Oct 30 11:29	7° <del>⊘</del> 31'21	0°-35'-41
				min. Earth dist.	3610 Oct 29 17:27	7° <del>⊘</del> 33'10	19.03949 AU
conjunction	3603 Mar 28 12:25	7° <del>Υ</del> 42'43	0°-43'-51	direct	3611 Jan 13 16:30	5° <del>⊘</del> 35'00	
minimum elong	3603 Mar 28 12:25	7° <del>Υ</del> 42'43	0°43'51				
max. Earth dist.	3603 Mar 29 10:32	7° <del>Υ</del> 45'54	21.04972 AU	conjunction	3611 Apr 29 08:21	9° <del>⊘</del> 28'00	0°-31'-12
retrograde	3603 Jul 16 07:44	11° <del>Υ</del> 43'30		minimum elong	3611 Apr 29 08:21	9° <del>⊘</del> 28'00	0°31'13
min. Earth dist.	3603 Oct 01 10:54	9° <del>Υ</del> 46'42	19.05607 AU	max. Earth dist.	3611 Apr 30 02:59	9° <del>⊘</del> 30'40	21.03015 AU
opposition	3603 Oct 02 08:23	9° <del>Υ</del> 44'33	0°-47'-57	retrograde	3611 Aug 18 02:46	13° <del>⊘</del> 30'27	
direct	3603 Dec 17 03:34	7° <del>Υ</del> 48'06		opposition	3611 Nov 03 18:29	11° <del>⊘</del> 31'01	0°-33'-9
				min. Earth dist.	3611 Nov 03 01:29	11° <del>⊘</del> 32'44	19.01997 AU
conjunction	3604 Mar 31 17:17	11° <del>Υ</del> 40'48	0°-42'-56	direct	3612 Jan 17 21:57	9° <del>⊘</del> 34'35	
minimum elong	3604 Mar 31 17:17	11° <del>Υ</del> 40'48	0°42'57				
max. Earth dist.	3604 Apr 01 16:13	11° <del>Υ</del> 44'05	21.06059 AU	conjunction	3612 May 02 15:40	13° <del>⊘</del> 28'00	0°-28'-50
retrograde	3604 Jul 19 15:06	15° <del>Υ</del> 41'33		minimum elong	3612 May 02 15:40	13° <del>⊘</del> 28'00	0°28'51
opposition	3604 Oct 05 16:17	13° <del>Υ</del> 42'31	0°-46'-50	max. Earth dist.	3612 May 03 09:59	13° <del>⊘</del> 30'37	21.00794 AU
min. Earth dist.	3604 Oct 04 19:20	13° <del>Υ</del> 44'37	19.06502 AU		3612 May 30 03:05	15° <del>⊘</del>	
direct	3604 Dec 20 09:25	11° <del>Υ</del> 46'06		retrograde	3612 Aug 21 10:39	17° <del>⊘</del> 30'52	
				min. Earth dist.	3612 Nov 06 09:57	15° <del>⊘</del> 32'57	18.99502 AU
conjunction	3605 Apr 04 21:58	15° <del>Υ</del> 38'33	0°-41'-49	opposition	3612 Nov 07 01:40	15° <del>⊘</del> 31'21	0°-30'-27
minimum elong	3605 Apr 04 21:58	15° <del>Υ</del> 38'33	0°41'50		3612 Nov 20 02:52	15° <del>⊘</del>	
max. Earth dist.	3605 Apr 05 20:01	15° <del>Υ</del> 41'42	21.06778 AU	direct	3613 Jan 21 03:21	13° <del>⊘</del> 34'48	
retrograde	3605 Jul 23 23:39	19° <del>Υ</del> 39'22			3613 Mar 21 05:46	15° <del>⊘</del>	
opposition	3605 Oct 09 23:54	17° <del>Υ</del> 40'16	0°-45'-29				
min. Earth dist.	3605 Oct 09 02:42	17° <del>Υ</del> 42'23	19.07041 AU	conjunction	3613 May 06 23:16	17° <del>⊘</del> 28'41	0°-26'-19
direct	3605 Dec 24 14:28	15° <del>Υ</del> 43'52		minimum elong	3613 May 06 23:16	17° <del>⊘</del> 28'41	0°26'20
				max. Earth dist.	3613 May 07 15:17	17° <del>⊘</del> 30'58	20.98042 AU
conjunction	3606 Apr 09 03:02	19° <del>Υ</del> 36'11	0°-40'-30	retrograde	3613 Aug 25 20:49	21° <del>⊘</del> 32'01	
minimum elong	3606 Apr 09 03:02	19° <del>Υ</del> 36'11	0°40'31	opposition	3613 Nov 11 08:57	19° <del>⊘</del> 32'22	0°-27'-36
max. Earth dist.	3606 Apr 10 01:45	19° <del>Υ</del> 39'25	21.07126 AU	min. Earth dist.	3613 Nov 10 18:34	19° <del>⊘</del> 33'49	18.96475 AU
retrograde	3606 Jul 28 06:56	23° <del>Υ</del> 37'07		direct	3614 Jan 25 09:25	17° <del>⊘</del> 35'37	
min. Earth dist.	3606 Oct 13 10:36	21° <del>Υ</del> 40'00	19.07205 AU				
opposition	3606 Oct 14 07:08	21° <del>Υ</del> 37'57	0°-43'-55	conjunction	3614 May 11 07:41	21° <del>⊘</del> 30'03	0°-23'-40
direct	3606 Dec 28 20:17	19° <del>Υ</del> 41'35		minimum elong	3614 May 11 07:41	21° <del>⊘</del> 30'03	0°23'41
				max. Earth dist.	3614 May 11 23:11	21° <del>⊘</del> 32'16	20.94749 AU
conjunction	3607 Apr 13 08:12	23° <del>Υ</del> 33'51	0°-39'00	retrograde	3614 Aug 30 05:35	25° <del>⊘</del> 33'52	
minimum elong	3607 Apr 13 08:12	23° <del>Υ</del> 33'51	0°39'02	opposition	3614 Nov 15 16:07	23° <del>⊘</del> 34'03	0°-24'-36
max. Earth dist.	3607 Apr 14 05:41	23° <del>Υ</del> 36'55	21.07117 AU	min. Earth dist.	3614 Nov 15 03:06	23° <del>⊘</del> 35'23	18.92923 AU
retrograde	3607 Aug 01 15:58	27° <del>Υ</del> 34'58		direct	3615 Jan 29 15:28	21° <del>⊘</del> 37'05	
opposition	3607 Oct 18 14:19	25° <del>Υ</del> 35'45	0°-42'-9				
min. Earth dist.	3607 Oct 17 17:52	25° <del>Υ</del> 37'48	19.07007 AU	conjunction	3615 May 15 16:22	25° <del>⊘</del> 32'08	0°-20'-53

minimum elong	3615 May 15 16:22	25°♄32'08	0°20'54	direct	3622 Feb 26 17:26	20°♄14'11	
max. Earth dist.	3615 May 16 05:27	25°♄33'59	20.90977 AU				
retrograde	3615 Sep 03 15:35	29°♄36'29		conjunction	3622 Jun 13 23:16	24°♄15'59	0°01'04
opposition	3615 Nov 19 23:31	27°♄36'28	0°-21'-27	minimum elong	3622 Jun 13 23:17	24°♄15'59	0°01'04
min. Earth dist.	3615 Nov 19 11:54	27°♄37'39	18.88929 AU	behind sun begin	3622 Jun 13 16:34	24°♄15'02	
direct	3616 Feb 02 21:40	25°♄39'14		behind sun end	3622 Jun 14 06:01	24°♄16'56	
				max. Earth dist.	3622 Jun 14 03:30	24°♄16'33	20.55724 AU
conjunction	3616 May 19 01:35	29°♄34'59	0°-17'-59	retrograde	3622 Oct 03 00:55	28°♄25'21	
minimum elong	3616 May 19 01:35	29°♄34'59	0°18'01	opposition	3622 Dec 18 09:59	26°♄24'20	0°02'59
max. Earth dist.	3616 May 19 14:22	29°♄36'48	20.86778 AU	min. Earth dist.	3622 Dec 18 07:00	26°♄24'39	18.52784 AU
	3616 May 26 08:06	0°♄		direct	3623 Mar 03 02:39	24°♄25'08	
retrograde	3616 Sep 07 01:32	3°♄39'54					
opposition	3616 Nov 23 07:04	1°♄39'42	0°-18'-12	conjunction	3623 Jun 18 13:41	28°♄28'13	0°04'24
min. Earth dist.	3616 Nov 22 20:34	1°♄40'47	18.84538 AU	minimum elong	3623 Jun 18 13:41	28°♄28'13	0°04'23
	3617 Jan 10 15:19	30°♄		behind sun begin	3623 Jun 18 07:04	28°♄27'17	
direct	3617 Feb 06 04:29	29°♄42'12		behind sun end	3623 Jun 18 20:17	28°♄29'10	
	3617 Mar 04 08:12	0°♄		max. Earth dist.	3623 Jun 18 15:02	28°♄28'23	20.49839 AU
					3623 Jul 15 08:52	0°♄	
conjunction	3617 May 23 11:23	3°♄38'44	0°-15'00	retrograde	3623 Oct 07 15:00	2°♄38'30	
minimum elong	3617 May 23 11:23	3°♄38'44	0°15'01	opposition	3623 Dec 22 20:07	0°♄37'23	0°06'40
behind sun begin	3617 May 23 09:06	3°♄38'24		min. Earth dist.	3623 Dec 22 19:13	0°♄37'29	18.46803 AU
behind sun end	3617 May 23 13:40	3°♄39'03			3624 Jan 06 22:40	30°♄	
max. Earth dist.	3617 May 23 21:46	3°♄40'12	20.82230 AU	direct	3624 Mar 06 11:15	28°♄37'54	
retrograde	3617 Sep 11 11:55	7°♄44'17			3624 May 02 21:57	0°♄	
opposition	3617 Nov 27 14:44	5°♄43'53	0°-14'-50				
min. Earth dist.	3617 Nov 27 05:40	5°♄44'49	18.79837 AU	conjunction	3624 Jun 22 05:04	2°♄42'21	0°07'42
direct	3618 Feb 10 10:55	3°♄46'05		minimum elong	3624 Jun 22 05:04	2°♄42'21	0°07'42
				behind sun begin	3624 Jun 21 22:59	2°♄41'29	
conjunction	3618 May 27 22:00	7°♄43'30	0°-11'-55	behind sun end	3624 Jun 22 11:08	2°♄43'12	
minimum elong	3618 May 27 22:00	7°♄43'30	0°11'57	max. Earth dist.	3624 Jun 22 05:47	2°♄42'26	20.43750 AU
behind sun begin	3618 May 27 17:26	7°♄42'52		retrograde	3624 Oct 11 06:57	6°♄53'31	
behind sun end	3618 May 28 02:34	7°♄44'08		opposition	3624 Dec 26 06:46	4°♄52'19	0°10'19
max. Earth dist.	3618 May 28 08:03	7°♄44'56	20.77377 AU	min. Earth dist.	3624 Dec 26 06:58	4°♄52'18	18.40599 AU
retrograde	3618 Sep 15 22:56	11°♄49'43		direct	3625 Mar 10 22:18	2°♄52'31	
opposition	3618 Dec 01 22:39	9°♄49'10	0°-11'-23				
min. Earth dist.	3618 Dec 01 14:35	9°♄50'00	18.74843 AU	conjunction	3625 Jun 26 21:25	6°♄58'21	0°10'58
direct	3619 Feb 14 18:26	7°♄51'05		minimum elong	3625 Jun 26 21:25	6°♄58'21	0°10'58
				behind sun begin	3625 Jun 26 16:24	6°♄57'38	
conjunction	3619 Jun 01 09:03	11°♄49'27	0°-8'-47	behind sun end	3625 Jun 27 02:27	6°♄59'04	
minimum elong	3619 Jun 01 09:03	11°♄49'27	0°08'48	max. Earth dist.	3625 Jun 26 18:57	6°♄58'00	20.37434 AU
behind sun begin	3619 Jun 01 03:17	11°♄48'39		retrograde	3625 Oct 15 21:54	11°♄10'26	
behind sun end	3619 Jun 01 14:48	11°♄50'16		opposition	3625 Dec 30 17:59	9°♄09'07	0°13'57
max. Earth dist.	3619 Jun 01 16:36	11°♄50'31	20.72268 AU	min. Earth dist.	3625 Dec 30 20:40	9°♄08'50	18.34174 AU
retrograde	3619 Sep 20 10:14	15°♄56'24		direct	3626 Mar 15 08:03	7°♄08'57	
opposition	3619 Dec 06 06:54	13°♄55'41	0°-7'-52				
min. Earth dist.	3619 Dec 06 00:19	13°♄56'22	18.69623 AU	conjunction	3626 Jul 01 14:54	11°♄16'14	0°14'13
direct	3620 Feb 19 01:27	11°♄57'18		minimum elong	3626 Jul 01 14:54	11°♄16'14	0°14'13
				behind sun begin	3626 Jul 01 11:51	11°♄15'47	
conjunction	3620 Jun 04 21:00	15°♄56'45	0°-5'-35	behind sun end	3626 Jul 01 17:56	11°♄16'40	
minimum elong	3620 Jun 04 21:01	15°♄56'45	0°05'36	max. Earth dist.	3626 Jul 01 11:25	11°♄15'44	20.30890 AU
behind sun begin	3620 Jun 04 14:34	15°♄55'50		retrograde	3626 Oct 20 15:38	15°♄29'10	
behind sun end	3620 Jun 05 03:28	15°♄57'39		opposition	3627 Jan 04 05:49	13°♄27'44	0°17'33
max. Earth dist.	3620 Jun 05 04:17	15°♄57'46	20.66940 AU	min. Earth dist.	3627 Jan 04 09:32	13°♄27'20	18.27518 AU
retrograde	3620 Sep 23 22:23	20°♄04'27		direct	3627 Mar 19 21:05	11°♄27'11	
opposition	3620 Dec 09 15:29	18°♄03'37	0°-4'-17				
min. Earth dist.	3620 Dec 09 09:47	18°♄04'13	18.64191 AU	conjunction	3627 Jul 06 08:52	15°♄35'53	0°17'25
direct	3621 Feb 22 09:36	16°♄04'58		minimum elong	3627 Jul 06 08:52	15°♄35'53	0°17'25
				max. Earth dist.	3627 Jul 06 02:15	15°♄34'55	20.24141 AU
conjunction	3621 Jun 09 09:36	20°♄05'32	0°-2'-19	retrograde	3627 Oct 25 06:59	19°♄49'42	
minimum elong	3621 Jun 09 09:35	20°♄05'32	0°02'21	opposition	3628 Jan 08 18:19	17°♄48'05	0°21'04
behind sun begin	3621 Jun 09 02:53	20°♄04'35		min. Earth dist.	3628 Jan 09 00:29	17°♄47'26	18.20698 AU
behind sun end	3621 Jun 09 16:18	20°♄06'29		direct	3628 Mar 23 08:46	15°♄47'06	
max. Earth dist.	3621 Jun 09 14:14	20°♄06'10	20.61426 AU				
retrograde	3621 Sep 28 11:09	24°♄14'04		conjunction	3628 Jul 10 03:56	19°♄57'16	0°20'32
opposition	3621 Dec 14 00:36	22°♄13'07	0°00'-39	minimum elong	3628 Jul 10 03:56	19°♄57'16	0°20'31
min. Earth dist.	3621 Dec 13 20:37	22°♄13'32	18.58584 AU	max. Earth dist.	3628 Jul 09 20:25	19°♄56'10	20.17262 AU
asc. node	3622 Feb 19 13:00	20°♄15'33		retrograde	3628 Oct 29 01:22	24°♄11'56	

opposition	3629 Jan 12 07:11	22°  10'08	0°24'29	minimum elong	3636 Aug 16 15:38	25°  49'56	0°40'12
min. Earth dist.	3629 Jan 12 14:08	22°  09'23	18.13774 AU	max. Earth dist.	3636 Aug 15 20:21	25°  47'00	19.66024 AU
direct	3629 Mar 27 23:16	20°  08'43			3636 Nov 14 13:03	0° 	
				retrograde	3636 Dec 04 12:14	0°  10'53	
conjunction	3629 Jul 14 23:41	24°  20'21	0°23'34		3636 Dec 24 14:11	30° 	
minimum elong	3629 Jul 14 23:41	24°  20'21	0°23'34	opposition	3637 Feb 16 14:28	28°  08'09	0°45'38
max. Earth dist.	3629 Jul 14 13:19	24°  18'49	20.10316 AU	min. Earth dist.	3637 Feb 17 06:22	28°  06'26	17.63428 AU
retrograde	3629 Nov 02 17:36	28°  35'52		direct	3637 May 02 18:02	26°  03'43	
opposition	3630 Jan 16 20:49	26°  33'51	0°27'47		3637 Aug 14 08:16	0° 	
min. Earth dist.	3630 Jan 17 06:10	26°  32'51	18.06833 AU				
direct	3630 Apr 01 12:59	24°  31'59		conjunction	3637 Aug 21 17:34	0°  27'09	0°41'44
				minimum elong	3637 Aug 21 17:34	0°  27'09	0°41'44
conjunction	3630 Jul 19 20:20	28°  45'06	0°26'27	max. Earth dist.	3637 Aug 20 21:31	0°  24'05	19.60873 AU
minimum elong	3630 Jul 19 20:20	28°  45'06	0°26'27	retrograde	3637 Dec 09 09:41	4°  48'45	
max. Earth dist.	3630 Jul 19 09:08	28°  43'26	20.03389 AU	opposition	3638 Feb 21 09:48	2°  46'03	0°47'12
	3630 Aug 10 00:13	0° 		min. Earth dist.	3638 Feb 22 03:34	2°  44'07	17.58438 AU
retrograde	3630 Nov 07 12:25	3°  01'26		direct	3638 May 07 14:09	0°  41'22	
opposition	3631 Jan 21 10:52	0°  59'15	0°30'56				
min. Earth dist.	3631 Jan 21 20:39	0°  58'11	17.99940 AU	conjunction	3638 Aug 26 19:55	5°  06'07	0°43'00
	3631 Feb 14 10:47	30°  R 		minimum elong	3638 Aug 26 19:55	5°  06'07	0°43'00
direct	3631 Apr 06 05:09	28°  56'55		max. Earth dist.	3638 Aug 25 22:11	5°  02'47	19.56034 AU
	3631 May 25 20:51	0° 		retrograde	3638 Dec 14 09:38	9°  28'20	
				opposition	3639 Feb 26 05:45	7°  25'38	0°48'28
conjunction	3631 Jul 24 17:38	3°  01'32	0°29'13	min. Earth dist.	3639 Feb 26 23:38	7°  23'40	17.53754 AU
minimum elong	3631 Jul 24 17:38	3°  01'32	0°29'13	direct	3639 May 12 13:05	5°  20'42	
max. Earth dist.	3631 Jul 24 04:08	3°  09'31	19.96547 AU				
retrograde	3631 Nov 12 05:38	7°  02'41		conjunction	3639 Aug 31 22:58	9°  46'42	0°43'59
opposition	3632 Jan 26 01:47	5°  02'19	0°33'55	minimum elong	3639 Aug 31 22:58	9°  46'42	0°44'00
min. Earth dist.	3632 Jan 26 13:43	5°  02'51	17.93188 AU	max. Earth dist.	3639 Aug 31 01:00	9°  43'19	19.51489 AU
direct	3632 Apr 09 20:24	3°  02'33		retrograde	3639 Dec 19 08:16	14°  09'25	
				opposition	3640 Mar 02 02:30	12°  06'44	0°49'26
conjunction	3632 Jul 28 15:41	7°  03'39	0°31'48	min. Earth dist.	3640 Mar 02 21:56	12°  04'37	17.49370 AU
minimum elong	3632 Jul 28 15:41	7°  03'39	0°31'49	direct	3640 May 16 10:49	10°  01'33	
max. Earth dist.	3632 Jul 28 01:26	7°  03'73	19.89886 AU	max. Earth dist.	3640 Sep 04 02:27	14°  25'00	19.47267 AU
retrograde	3632 Nov 16 01:40	11°  05'73					
opposition	3633 Jan 29 17:14	9°  05'50	0°36'43	conjunction	3640 Sep 05 02:17	14°  28'41	0°44'41
min. Earth dist.	3633 Jan 30 05:18	9°  05'34	17.86634 AU	minimum elong	3640 Sep 05 02:17	14°  28'41	0°44'41
direct	3633 Apr 14 14:16	7°  05'15		retrograde	3640 Dec 23 08:56	18°  51'52	
				opposition	3641 Mar 06 23:50	16°  49'09	0°50'04
conjunction	3633 Aug 02 14:37	12°  09'31	0°34'13	min. Earth dist.	3641 Mar 07 19:28	16°  47'00	17.45317 AU
minimum elong	3633 Aug 02 14:37	12°  09'31	0°34'13	direct	3641 May 21 10:49	14°  43'44	
max. Earth dist.	3633 Aug 01 22:34	12°  07'05	19.83446 AU	max. Earth dist.	3641 Sep 09 06:39	19°  08'15	19.43379 AU
	3633 Sep 22 15:40	15° 					
retrograde	3633 Nov 20 20:10	16°  02'81		conjunction	3641 Sep 10 06:11	19°  11'54	0°45'05
	3634 Jan 20 23:22	15°  R 		minimum elong	3641 Sep 10 06:11	19°  11'54	0°45'05
opposition	3634 Feb 03 09:28	14°  02'53	0°39'19	retrograde	3641 Dec 28 08:20	23°  35'25	
min. Earth dist.	3634 Feb 03 23:33	14°  02'40	17.80343 AU	opposition	3642 Mar 11 21:48	21°  32'42	0°50'21
direct	3634 Apr 19 07:10	12°  02'20		min. Earth dist.	3642 Mar 12 18:27	21°  30'27	17.41617 AU
	3634 Jul 10 02:21	15° 		direct	3642 May 26 10:17	19°  27'03	
				max. Earth dist.	3642 Sep 14 08:54	23°  52'13	19.39888 AU
conjunction	3634 Aug 07 14:18	16°  04'10	0°36'26				
minimum elong	3634 Aug 07 14:18	16°  04'10	0°36'26	conjunction	3642 Sep 15 10:03	23°  56'08	0°45'11
max. Earth dist.	3634 Aug 06 21:20	16°  03'83	19.77308 AU	minimum elong	3642 Sep 15 10:03	23°  56'08	0°45'12
retrograde	3634 Nov 25 17:30	21°  00'37		retrograde	3643 Jan 02 08:46	28°  19'56	
opposition	3635 Feb 08 02:23	18°  05'75	0°41'40	opposition	3643 Mar 16 20:19	26°  17'10	0°50'18
min. Earth dist.	3635 Feb 08 16:22	18°  05'62	17.74366 AU	min. Earth dist.	3643 Mar 17 17:04	26°  14'54	17.38349 AU
direct	3635 Apr 24 02:28	16°  05'40		direct	3643 May 31 11:03	24°  11'18	
conjunction	3635 Aug 12 14:32	21°  01'43	0°38'26	conjunction	3643 Sep 20 14:03	28°  41'10	0°44'58
minimum elong	3635 Aug 12 14:32	21°  01'43	0°38'26	minimum elong	3643 Sep 20 14:03	28°  41'10	0°44'58
max. Earth dist.	3635 Aug 11 20:29	21°  01'51	19.71489 AU	max. Earth dist.	3643 Sep 19 13:54	28°  37'23	19.36843 AU
retrograde	3635 Nov 30 13:35	25°  03'45			3643 Oct 11 21:36	0° 	
opposition	3636 Feb 12 20:12	23°  03'20	0°43'47	retrograde	3644 Jan 07 08:24	3°  05'09	
min. Earth dist.	3636 Feb 13 12:02	23°  03'23	17.68726 AU	opposition	3644 Mar 20 19:21	1°  02'22	0°49'54
direct	3636 Apr 27 20:58	21°  02'75		min. Earth dist.	3644 Mar 21 16:21	1°  00'03	17.35541 AU
					3644 Apr 14 15:24	30°  R 	
conjunction	3636 Aug 16 15:38	25°  04'56	0°40'12	direct	3644 Jun 04 12:43	28°  56'17	

	3644 Jul 24 06:45	0°♄		direct	3652 Jul 13 14:17	7°♄06'20	
conjunction	3644 Sep 24 18:03	3°♄26'48	0°44'27	conjunction	3652 Nov 02 19:12	11°♄37'20	0°29'59
minimum elong	3644 Sep 24 18:03	3°♄26'48	0°44'27	minimum elong	3652 Nov 02 19:12	11°♄37'20	0°29'59
max. Earth dist.	3644 Sep 23 16:46	3°♄22'50	19.34294 AU	max. Earth dist.	3652 Nov 02 01:37	11°♄34'34	19.35910 AU
retrograde	3645 Jan 11 07:41	7°♄50'53			3653 Jan 02 12:59	15°♄	
opposition	3645 Mar 25 18:39	5°♄48'05	0°49'09	retrograde	3653 Feb 18 06:54	15°♄59'38	
min. Earth dist.	3645 Mar 26 15:48	5°♄45'46	17.33270 AU		3653 Apr 07 19:56	15°♄	
direct	3645 Jun 09 14:28	3°♄41'50		opposition	3653 May 03 01:59	13°♄57'44	0°31'52
				min. Earth dist.	3653 May 03 17:53	13°♄56'02	17.37226 AU
conjunction	3645 Sep 29 22:08	8°♄12'52	0°43'37	direct	3653 Jul 18 16:50	11°♄51'58	
minimum elong	3645 Sep 29 22:08	8°♄12'52	0°43'37		3653 Oct 16 17:16	15°♄	
max. Earth dist.	3645 Sep 28 22:13	8°♄09'07	19.32302 AU				
retrograde	3646 Jan 16 07:39	12°♄36'58		conjunction	3653 Nov 07 20:31	16°♄22'24	0°27'05
opposition	3646 Mar 30 18:34	10°♄34'10	0°48'04	minimum elong	3653 Nov 07 20:31	16°♄22'25	0°27'05
min. Earth dist.	3646 Mar 31 15:07	10°♄31'54	17.31567 AU	max. Earth dist.	3653 Nov 07 03:24	16°♄19'43	19.38612 AU
direct	3646 Jun 14 18:12	8°♄27'48		retrograde	3654 Feb 23 07:08	20°♄44'10	
max. Earth dist.	3646 Oct 04 01:36	12°♄55'24	19.30911 AU	opposition	3654 May 08 03:36	18°♄42'26	0°28'32
				min. Earth dist.	3654 May 08 17:28	18°♄40'57	17.40133 AU
conjunction	3646 Oct 05 01:48	12°♄59'12	0°42'29	direct	3654 Jul 23 21:04	16°♄36'52	
minimum elong	3646 Oct 05 01:48	12°♄59'12	0°42'28				
retrograde	3647 Jan 21 06:28	17°♄23'16		conjunction	3654 Nov 12 21:10	21°♄06'37	0°24'01
opposition	3647 Apr 04 18:53	15°♄20'29	0°46'38	minimum elong	3654 Nov 12 21:11	21°♄06'37	0°24'01
min. Earth dist.	3647 Apr 05 15:21	15°♄18'14	17.30509 AU	max. Earth dist.	3654 Nov 12 06:11	21°♄04'16	19.41722 AU
direct	3647 Jun 19 20:48	13°♄14'02		retrograde	3655 Feb 28 05:17	25°♄27'46	
max. Earth dist.	3647 Oct 09 06:48	17°♄42'08	19.30185 AU	opposition	3655 May 13 05:16	23°♄26'11	0°25'01
				min. Earth dist.	3655 May 13 18:57	23°♄24'42	17.43437 AU
conjunction	3647 Oct 10 05:29	17°♄45'42	0°41'03	direct	3655 Jul 28 23:54	21°♄20'49	
minimum elong	3647 Oct 10 05:29	17°♄45'42	0°41'03				
retrograde	3648 Jan 26 06:59	22°♄09'38		conjunction	3655 Nov 17 21:06	25°♄49'44	0°20'48
opposition	3648 Apr 08 19:20	20°♄06'56	0°44'53	minimum elong	3655 Nov 17 21:06	25°♄49'44	0°20'48
min. Earth dist.	3648 Apr 09 14:31	20°♄04'50	17.30107 AU	max. Earth dist.	3655 Nov 17 06:24	25°♄47'26	19.45229 AU
direct	3648 Jun 24 01:11	18°♄00'29			3656 Feb 14 00:30	0°♂	
max. Earth dist.	3648 Oct 13 10:37	22°♄28'46	19.30121 AU	retrograde	3656 Mar 04 04:06	0°♂10'13	
					3656 Mar 23 12:06	30°♄	
conjunction	3648 Oct 14 08:57	22°♄32'17	0°39'21	opposition	3656 May 17 06:25	28°♄08'45	0°21'20
minimum elong	3648 Oct 14 08:57	22°♄32'17	0°39'20	min. Earth dist.	3656 May 17 18:05	28°♄07'30	17.47126 AU
retrograde	3649 Jan 30 06:11	26°♄56'02		direct	3656 Aug 02 03:32	26°♄03'36	
opposition	3649 Apr 13 20:17	24°♄53'27	0°42'50		3656 Nov 13 10:49	0°♂	
min. Earth dist.	3649 Apr 14 15:29	24°♄51'22	17.30376 AU				
direct	3649 Jun 29 03:32	22°♄47'04		conjunction	3656 Nov 21 20:26	0°♂31'36	0°17'27
				minimum elong	3656 Nov 21 20:26	0°♂31'36	0°17'27
conjunction	3649 Oct 19 12:05	27°♄18'52	0°37'22	max. Earth dist.	3656 Nov 21 08:11	0°♂29'41	19.49103 AU
minimum elong	3649 Oct 19 12:05	27°♄18'52	0°37'23	retrograde	3657 Mar 09 01:19	4°♂51'20	
max. Earth dist.	3649 Oct 18 15:02	27°♄15'33	19.30717 AU	opposition	3657 May 22 07:36	2°♂50'00	0°17'32
	3649 Dec 04 01:56	0°♄		min. Earth dist.	3657 May 22 18:42	2°♂48'49	17.51176 AU
retrograde	3650 Feb 04 07:24	1°♄42'22		direct	3657 Aug 07 06:36	0°♂45'05	
	3650 Apr 11 04:14	30°♄					
opposition	3650 Apr 18 21:23	29°♄39'57	0°40'29	conjunction	3657 Nov 26 18:34	5°♂12'01	0°14'00
min. Earth dist.	3650 Apr 19 14:54	29°♄38'03	17.31269 AU	minimum elong	3657 Nov 26 18:34	5°♂12'01	0°14'01
direct	3650 Jul 04 07:48	27°♄33'41		behind sun begin	3657 Nov 26 15:11	5°♂11'30	
	3650 Sep 20 04:48	0°♄		behind sun end	3657 Nov 26 21:57	5°♂12'32	
conjunction	3650 Oct 24 14:54	2°♄05'21	0°35'08	max. Earth dist.	3657 Nov 26 06:50	5°♂10'11	19.53348 AU
minimum elong	3650 Oct 24 14:55	2°♄05'21	0°35'09	retrograde	3658 Mar 13 22:28	9°♂30'58	
max. Earth dist.	3650 Oct 23 18:56	2°♄02'13	19.31911 AU	opposition	3658 May 27 08:21	7°♂29'44	0°13'38
retrograde	3651 Feb 09 06:56	6°♄28'32		min. Earth dist.	3658 May 27 17:18	7°♂28'47	17.55609 AU
opposition	3651 Apr 23 22:51	4°♄26'18	0°37'52	direct	3658 Aug 12 09:35	5°♂25'02	
min. Earth dist.	3651 Apr 24 16:28	4°♄24'23	17.32752 AU				
direct	3651 Jul 09 10:04	2°♄20'10		conjunction	3658 Dec 01 16:01	9°♂50'49	0°10'28
				minimum elong	3658 Dec 01 16:01	9°♂50'49	0°10'28
conjunction	3651 Oct 29 17:11	6°♄51'34	0°32'40	behind sun begin	3658 Dec 01 10:49	9°♂50'01	
minimum elong	3651 Oct 29 17:11	6°♄51'34	0°32'40	behind sun end	3658 Dec 01 21:13	9°♂51'36	
max. Earth dist.	3651 Oct 28 22:04	6°♄48'33	19.33670 AU	max. Earth dist.	3658 Dec 01 07:12	9°♂49'27	19.57975 AU
retrograde	3652 Feb 14 07:53	11°♄14'21		retrograde	3659 Mar 18 18:17	14°♂08'55	
opposition	3652 Apr 28 00:19	9°♄12'17	0°34'59	opposition	3659 Jun 01 08:40	12°♂07'48	0°09'40
min. Earth dist.	3652 Apr 28 16:05	9°♄10'35	17.34754 AU	min. Earth dist.	3659 Jun 01 16:27	12°♂06'59	17.60427 AU
				direct	3659 Aug 17 11:52	10°♂03'22	

conjunction	3659 Dec 06 12:18	14°♂27'54	0°06'55	behind sun end	3666 Jan 01 23:01	11°♂34'49	
minimum elong	3659 Dec 06 12:18	14°♂27'54	0°06'55	max. Earth dist.	3666 Jan 01 23:39	11°♂34'55	20.00259 AU
behind sun begin	3659 Dec 06 06:09	14°♂26'58		retrograde	3666 Apr 19 02:51	15°♂46'23	
behind sun end	3659 Dec 06 18:27	14°♂28'50		opposition	3666 Jul 03 21:21	13°♂46'30	0°-17'-39
max. Earth dist.	3659 Dec 06 04:18	14°♂26'40	19.62999 AU	min. Earth dist.	3666 Jul 03 16:49	13°♂46'58	18.03639 AU
retrograde	3660 Mar 22 14:07	18°♂45'10		direct	3666 Sep 19 00:38	11°♂44'41	
opposition	3660 Jun 05 08:31	16°♂44'09	0°05'40				
min. Earth dist.	3660 Jun 05 14:12	16°♂43'33	17.65656 AU	conjunction	3667 Jan 06 10:15	15°♂59'24	0°-17'-33
direct	3660 Aug 21 12:54	14°♂39'59		minimum elong	3667 Jan 06 10:14	15°♂59'24	0°17'33
				max. Earth dist.	3667 Jan 06 16:03	16°♂00'17	20.07055 AU
conjunction	3660 Dec 10 07:50	19°♂03'14	0°03'20	retrograde	3667 Apr 23 20:31	20°♂10'33	
minimum elong	3660 Dec 10 07:50	19°♂03'14	0°03'19	opposition	3667 Jul 08 17:19	18°♂10'51	0°-21'-13
behind sun begin	3660 Dec 10 01:16	19°♂02'15		min. Earth dist.	3667 Jul 08 10:40	18°♂11'32	18.10420 AU
behind sun end	3660 Dec 10 14:24	19°♂04'14		direct	3667 Sep 23 21:56	16°♂09'26	
max. Earth dist.	3660 Dec 10 02:52	19°♂02'30	19.68429 AU				
retrograde	3661 Mar 27 08:56	23°♂19'37		conjunction	3668 Jan 10 23:50	20°♂22'40	0°-20'-42
opposition	3661 Jun 10 07:57	21°♂18'47	0°01'39	minimum elong	3668 Jan 10 23:50	20°♂22'40	0°20'42
min. Earth dist.	3661 Jun 10 11:49	21°♂18'23	17.71275 AU	max. Earth dist.	3668 Jan 11 06:44	20°♂23'43	20.13803 AU
direct	3661 Aug 26 13:31	19°♂14'57		retrograde	3668 Apr 27 10:53	24°♂32'58	
desc. node	3661 Nov 10 03:30	21°♂31'53		opposition	3668 Jul 12 12:56	22°♂33'24	0°-24'-38
				min. Earth dist.	3668 Jul 12 05:47	22°♂34'08	18.17138 AU
conjunction	3661 Dec 15 02:21	23°♂36'51	0°00'-20	direct	3668 Sep 27 15:37	20°♂32'21	
minimum elong	3661 Dec 15 02:19	23°♂36'51	0°00'21				
behind sun begin	3661 Dec 14 19:45	23°♂35'51		conjunction	3669 Jan 14 12:35	24°♂44'05	0°-23'-42
behind sun end	3661 Dec 15 08:54	23°♂37'50		minimum elong	3669 Jan 14 12:35	24°♂44'05	0°23'43
max. Earth dist.	3661 Dec 14 22:26	23°♂36'17	19.74249 AU	max. Earth dist.	3669 Jan 14 21:01	24°♂45'22	20.20463 AU
retrograde	3662 Apr 01 03:49	27°♂52'23		retrograde	3669 May 02 02:46	28°♂53'32	
opposition	3662 Jun 15 06:54	25°♂51'42	0°-2'-19	opposition	3669 Jul 17 07:45	26°♂54'05	0°-27'-53
min. Earth dist.	3662 Jun 15 08:51	25°♂51'30	17.77285 AU	min. Earth dist.	3669 Jul 16 22:21	26°♂55'02	18.23726 AU
direct	3662 Aug 31 12:01	23°♂48'14		direct	3669 Oct 02 11:56	24°♂53'23	
conjunction	3662 Dec 19 19:56	28°♂08'45	0°-3'-58	conjunction	3670 Jan 19 00:36	29°♂03'38	0°-26'-34
minimum elong	3662 Dec 19 19:57	28°♂08'45	0°03'58	minimum elong	3670 Jan 19 00:36	29°♂03'38	0°26'34
behind sun begin	3662 Dec 19 13:27	28°♂07'47		max. Earth dist.	3670 Jan 19 10:16	29°♂05'05	20.26974 AU
behind sun end	3662 Dec 20 02:27	28°♂09'44			3670 Feb 03 16:30	0°≈	
max. Earth dist.	3662 Dec 19 18:58	28°♂08'38	19.80427 AU	retrograde	3670 May 06 15:48	3°≈12'14	
	3663 Jan 19 17:56	0°♂		opposition	3670 Jul 22 01:58	1°≈12'51	0°-30'-57
retrograde	3663 Apr 05 22:32	2°♂23'24		min. Earth dist.	3670 Jul 21 16:17	1°≈13'50	18.30170 AU
opposition	3663 Jun 20 05:18	0°♂22'57	0°-6'-16		3670 Aug 23 01:51	30°R♂	
min. Earth dist.	3663 Jun 20 05:12	0°♂22'57	17.83595 AU	direct	3670 Oct 07 03:59	29°♂12'28	
	3663 Jun 29 10:28	30°R♂			3670 Nov 19 16:01	0°≈	
direct	3663 Sep 05 11:03	28°♂19'52					
	3663 Nov 08 07:51	0°♂		conjunction	3671 Jan 23 11:45	3°≈21'14	0°-29'-15
conjunction	3663 Dec 24 12:44	2°♂38'59	0°-7'-28	minimum elong	3671 Jan 23 11:45	3°≈21'14	0°29'16
minimum elong	3663 Dec 24 12:44	2°♂38'59	0°07'30	max. Earth dist.	3671 Jan 23 22:42	3°≈22'53	20.33339 AU
behind sun begin	3663 Dec 24 06:43	2°♂38'05		retrograde	3671 May 11 05:59	7°≈29'00	
behind sun end	3663 Dec 24 18:44	2°♂39'53		opposition	3671 Jul 26 19:15	5°≈29'41	0°-33'-50
max. Earth dist.	3663 Dec 24 12:52	2°♂39'00	19.86868 AU	min. Earth dist.	3671 Jul 26 07:17	5°≈30'54	18.36448 AU
retrograde	3664 Apr 09 16:09	6°♂52'46		direct	3671 Oct 11 22:22	3°≈29'35	
opposition	3664 Jun 24 03:05	4°♂52'30	0°-10'-9				
min. Earth dist.	3664 Jun 24 01:39	4°♂52'39	17.90151 AU	conjunction	3672 Jan 27 22:06	7°≈36'54	0°-31'-45
direct	3664 Sep 09 07:21	2°♂49'51		minimum elong	3672 Jan 27 22:06	7°≈36'54	0°31'46
				max. Earth dist.	3672 Jan 28 10:31	7°≈38'45	20.39532 AU
conjunction	3664 Dec 28 04:48	7°♂07'32	0°-10'-55	retrograde	3672 May 14 17:39	11°≈43'52	
minimum elong	3664 Dec 28 04:47	7°♂07'32	0°10'55	opposition	3672 Jul 30 11:54	9°≈44'34	0°-36'-30
behind sun begin	3664 Dec 27 23:46	7°♂06'46		min. Earth dist.	3672 Jul 29 23:39	9°≈45'49	18.42584 AU
behind sun end	3664 Dec 28 09:49	7°♂08'17		direct	3672 Oct 15 12:57	7°≈44'45	
max. Earth dist.	3664 Dec 28 07:23	7°♂07'55	19.93512 AU				
retrograde	3665 Apr 14 10:47	11°♂20'25		conjunction	3673 Jan 31 07:42	11°≈50'40	0°-34'-4
opposition	3665 Jun 29 00:27	9°♂20'22	0°-13'-57	minimum elong	3673 Jan 31 07:42	11°≈50'40	0°34'05
min. Earth dist.	3665 Jun 28 20:51	9°♂20'45	17.96851 AU	max. Earth dist.	3673 Jan 31 21:23	11°≈52'42	20.45610 AU
direct	3665 Sep 14 05:40	7°♂18'08			3673 Apr 01 11:23	15°≈	
				retrograde	3673 May 19 06:34	15°≈56'52	
conjunction	3666 Jan 01 19:49	11°♂34'20	0°-14'-17		3673 Jul 08 02:52	15°R≈	
minimum elong	3666 Jan 01 19:49	11°♂34'20	0°14'18	opposition	3673 Aug 04 03:46	13°≈57'36	0°-38'-56
behind sun begin	3666 Jan 01 16:36	11°♂33'51		min. Earth dist.	3673 Aug 03 13:01	13°≈59'06	18.48608 AU
				direct	3673 Oct 20 04:56	11°≈58'05	

	3674 Jan 17 23:37	15° $\approx$		direct	3681 Nov 22 19:48	14° $\times$ 55'05	
conjunction	3674 Feb 04 16:32	16° $\approx$ 02'37	0°-36'-11	conjunction	3682 Mar 08 22:35	18° $\times$ 51'17	0°-45'-19
minimum elong	3674 Feb 04 16:31	16° $\approx$ 02'37	0°36'12	minimum elong	3682 Mar 08 22:35	18° $\times$ 51'17	0°45'20
max. Earth dist.	3674 Feb 05 07:57	16° $\approx$ 04'55	20.51572 AU	max. Earth dist.	3682 Mar 09 21:02	18° $\times$ 54'33	20.91970 AU
retrograde	3674 May 23 17:19	20° $\approx$ 08'08		retrograde	3682 Jun 26 01:00	22° $\times$ 53'04	
opposition	3674 Aug 08 19:01	18° $\approx$ 08'55	0°-41'-9	opposition	3682 Sep 11 22:14	20° $\times$ 54'26	0°-50'-12
min. Earth dist.	3674 Aug 08 03:56	18° $\approx$ 10'27	18.54531 AU	min. Earth dist.	3682 Sep 11 01:19	20° $\times$ 56'32	18.93745 AU
direct	3674 Oct 24 17:49	16° $\approx$ 09'42		direct	3682 Nov 27 03:50	18° $\times$ 57'31	
conjunction	3675 Feb 09 00:49	20° $\approx$ 12'57	0°-38'-5	conjunction	3683 Mar 13 04:05	22° $\times$ 52'57	0°-45'-27
minimum elong	3675 Feb 09 00:49	20° $\approx$ 12'57	0°38'05	minimum elong	3683 Mar 13 04:05	22° $\times$ 52'57	0°45'28
max. Earth dist.	3675 Feb 09 17:14	20° $\approx$ 15'23	20.57441 AU	max. Earth dist.	3683 Mar 14 01:56	22° $\times$ 56'07	20.95315 AU
retrograde	3675 May 28 05:07	24° $\approx$ 17'48		retrograde	3683 Jun 30 10:44	26° $\times$ 54'27	
opposition	3675 Aug 13 09:13	22° $\approx$ 18'40	0°-43'-8	min. Earth dist.	3683 Sep 15 10:27	24° $\times$ 57'57	18.96832 AU
min. Earth dist.	3675 Aug 12 15:48	22° $\approx$ 20'25	18.60337 AU	opposition	3683 Sep 16 08:09	24° $\times$ 55'47	0°-50'-13
direct	3675 Oct 29 07:29	20° $\approx$ 19'45		direct	3683 Dec 01 11:38	22° $\times$ 58'59	
conjunction	3676 Feb 13 08:35	24° $\approx$ 21'49	0°-39'-46	conjunction	3684 Mar 16 09:24	26° $\times$ 53'44	0°-45'-22
minimum elong	3676 Feb 13 08:35	24° $\approx$ 21'49	0°39'47	minimum elong	3684 Mar 16 09:24	26° $\times$ 53'44	0°45'22
max. Earth dist.	3676 Feb 14 02:37	24° $\approx$ 24'29	20.63167 AU	max. Earth dist.	3684 Mar 17 07:56	26° $\times$ 57'00	20.98141 AU
retrograde	3676 May 31 15:00	28° $\approx$ 26'05			3684 May 16 17:30	0° $\gamma$	
opposition	3676 Aug 16 23:07	26° $\approx$ 27'02	0°-44'-52	retrograde	3684 Jul 03 17:58	0° $\gamma$ 55'00	
min. Earth dist.	3676 Aug 16 05:33	26° $\approx$ 28'48	18.65991 AU		3684 Aug 22 15:21	30° $\times$	
direct	3676 Nov 01 18:29	24° $\approx$ 28'28		opposition	3684 Sep 19 17:49	28° $\times$ 56'15	0°-49'-59
conjunction	3677 Feb 16 15:39	28° $\approx$ 29'21	0°-41'-15	min. Earth dist.	3684 Sep 18 20:51	28° $\times$ 58'21	18.99412 AU
minimum elong	3677 Feb 16 15:39	28° $\approx$ 29'21	0°41'15	direct	3684 Dec 04 19:24	26° $\times$ 59'34	
max. Earth dist.	3677 Feb 17 10:26	28° $\approx$ 32'07	20.68732 AU		3685 Mar 04 23:08	0° $\gamma$	
	3677 Mar 14 21:25	0° $\times$		conjunction	3685 Mar 20 14:17	0° $\gamma$ 53'40	0°-45'-3
retrograde	3677 Jun 05 02:17	2° $\times$ 33'06		minimum elong	3685 Mar 20 14:17	0° $\gamma$ 53'40	0°45'05
opposition	3677 Aug 21 12:16	0° $\times$ 34'09	0°-46'-22	max. Earth dist.	3685 Mar 21 12:18	0° $\gamma$ 56'50	21.00497 AU
min. Earth dist.	3677 Aug 20 16:38	0° $\times$ 36'07	18.71450 AU	retrograde	3685 Jul 08 03:29	4° $\gamma$ 54'44	
	3677 Sep 04 21:15	30° $\times$		min. Earth dist.	3685 Sep 23 05:12	2° $\gamma$ 58'03	19.01546 AU
direct	3677 Nov 06 06:29	28° $\approx$ 35'54		opposition	3685 Sep 24 02:54	2° $\gamma$ 55'53	0°-49'-31
	3678 Jan 03 23:00	0° $\times$		direct	3685 Dec 09 02:19	0° $\gamma$ 59'14	
conjunction	3678 Feb 20 22:29	2° $\times$ 35'44	0°-42'-30	conjunction	3686 Mar 24 19:15	4° $\gamma$ 52'49	0°-44'-32
minimum elong	3678 Feb 20 22:29	2° $\times$ 35'44	0°42'31	minimum elong	3686 Mar 24 19:15	4° $\gamma$ 52'49	0°44'32
max. Earth dist.	3678 Feb 21 18:45	2° $\gamma$ 38'42	20.74063 AU	max. Earth dist.	3686 Mar 25 18:02	4° $\gamma$ 56'05	21.02409 AU
retrograde	3678 Jun 09 11:14	6° $\times$ 38'59		retrograde	3686 Jul 12 09:55	8° $\gamma$ 53'43	
min. Earth dist.	3678 Aug 25 05:27	4° $\times$ 42'05	18.76656 AU	opposition	3686 Sep 28 11:26	6° $\gamma$ 54'46	0°-48'-48
opposition	3678 Aug 26 00:54	4° $\times$ 40'08	0°-47'-38	min. Earth dist.	3686 Sep 27 14:25	6° $\gamma$ 56'53	19.03259 AU
direct	3678 Nov 10 15:48	2° $\times$ 42'13		direct	3686 Dec 13 09:04	4° $\gamma$ 58'11	
conjunction	3679 Feb 25 04:53	6° $\times$ 41'02	0°-43'-32	conjunction	3687 Mar 29 00:03	8° $\gamma$ 51'18	0°-43'-47
minimum elong	3679 Feb 25 04:53	6° $\times$ 41'02	0°43'33	minimum elong	3687 Mar 29 00:03	8° $\gamma$ 51'18	0°43'48
max. Earth dist.	3679 Feb 26 01:26	6° $\times$ 44'02	20.79123 AU	max. Earth dist.	3687 Mar 29 22:12	8° $\gamma$ 54'29	21.03938 AU
retrograde	3679 Jun 13 22:18	10° $\times$ 43'51		retrograde	3687 Jul 16 19:22	12° $\gamma$ 52'07	
opposition	3679 Aug 30 12:53	8° $\times$ 45'05	0°-48'-39	opposition	3687 Oct 02 19:37	10° $\gamma$ 53'05	0°-47'-52
min. Earth dist.	3679 Aug 29 15:52	8° $\times$ 47'11	18.81550 AU	min. Earth dist.	3687 Oct 01 21:57	10° $\gamma$ 55'15	19.04605 AU
direct	3679 Nov 15 02:15	6° $\times$ 47'28		direct	3687 Dec 17 15:27	8° $\gamma$ 56'31	
conjunction	3680 Feb 29 11:00	10° $\times$ 45'21	0°-44'-21	conjunction	3688 Apr 01 04:48	12° $\gamma$ 49'18	0°-42'-50
minimum elong	3680 Feb 29 10:59	10° $\times$ 45'21	0°44'23	minimum elong	3688 Apr 01 04:48	12° $\gamma$ 49'18	0°42'51
max. Earth dist.	3680 Mar 01 08:44	10° $\times$ 48'31	20.83822 AU	max. Earth dist.	3688 Apr 02 03:43	12° $\gamma$ 52'35	21.05092 AU
retrograde	3680 Jun 17 06:27	14° $\times$ 47'47		retrograde	3688 Jul 20 01:43	16° $\gamma$ 50'06	
min. Earth dist.	3680 Sep 02 04:00	12° $\times$ 51'09	18.86061 AU	min. Earth dist.	3688 Oct 05 06:32	14° $\gamma$ 53'06	19.05582 AU
opposition	3680 Sep 03 00:31	12° $\times$ 49'06	0°-49'-25	opposition	3688 Oct 06 03:36	14° $\gamma$ 50'59	0°-46'-41
direct	3680 Nov 18 10:41	10° $\times$ 51'45		direct	3688 Dec 20 20:53	12° $\gamma$ 54'30	
conjunction	3681 Mar 04 16:53	14° $\times$ 48'45	0°-44'-57	conjunction	3689 Apr 05 09:39	16° $\gamma$ 47'00	0°-41'-40
minimum elong	3681 Mar 04 16:53	14° $\times$ 48'45	0°44'58	minimum elong	3689 Apr 05 09:39	16° $\gamma$ 47'00	0°41'41
max. Earth dist.	3681 Mar 05 14:30	14° $\times$ 51'54	20.88131 AU	max. Earth dist.	3689 Apr 06 07:49	16° $\gamma$ 50'11	21.05906 AU
retrograde	3681 Jun 21 17:05	18° $\times$ 50'51		retrograde	3689 Jul 24 10:57	20° $\gamma$ 47'52	
opposition	3681 Sep 07 11:34	16° $\times$ 52'12	0°-49'-56	opposition	3689 Oct 10 11:11	18° $\gamma$ 48'41	0°-45'-18
min. Earth dist.	3681 Sep 06 13:54	16° $\times$ 54'22	18.90150 AU	min. Earth dist.	3689 Oct 09 13:43	18° $\gamma$ 50'50	19.06219 AU

direct	3689 Dec 25 02:55	16° $\Upsilon$ 52'14		retrograde	3697 Aug 26 09:02	22° $\text{♄}$ 41'18	
				opposition	3697 Nov 11 20:52	20° $\text{♄}$ 41'35	0°-27'-7
conjunction	3690 Apr 09 14:44	20° $\Upsilon$ 44'37	0°-40'-19	min. Earth dist.	3697 Nov 11 06:35	20° $\text{♄}$ 43'02	18.95552 AU
minimum elong	3690 Apr 09 14:44	20° $\Upsilon$ 44'37	0°40'21	direct	3698 Jan 25 21:07	18° $\text{♄}$ 44'46	
max. Earth dist.	3690 Apr 10 13:28	20° $\Upsilon$ 47'52	21.06353 AU				
retrograde	3690 Jul 28 17:56	24° $\Upsilon$ 45'36		conjunction	3698 May 11 19:50	22° $\text{♄}$ 39'17	0°-23'-13
opposition	3690 Oct 14 18:38	22° $\Upsilon$ 46'22	0°-43'-42	minimum elong	3698 May 11 19:51	22° $\text{♄}$ 39'18	0°23'14
min. Earth dist.	3690 Oct 13 22:01	22° $\Upsilon$ 48'27	19.06476 AU	max. Earth dist.	3698 May 12 11:07	22° $\text{♄}$ 41'28	20.93808 AU
direct	3690 Dec 29 07:25	20° $\Upsilon$ 49'58		retrograde	3698 Aug 30 17:46	26° $\text{♄}$ 43'12	
				opposition	3698 Nov 16 04:09	24° $\text{♄}$ 43'19	0°-24'-5
conjunction	3691 Apr 13 19:56	24° $\Upsilon$ 42'17	0°-38'-47	min. Earth dist.	3698 Nov 15 15:14	24° $\text{♄}$ 44'38	18.91976 AU
minimum elong	3691 Apr 13 19:56	24° $\Upsilon$ 42'17	0°38'47	direct	3699 Jan 30 03:32	22° $\text{♄}$ 46'17	
max. Earth dist.	3691 Apr 14 17:36	24° $\Upsilon$ 45'23	21.06429 AU				
retrograde	3691 Aug 02 02:58	28° $\Upsilon$ 43'28		conjunction	3699 May 16 04:23	26° $\text{♄}$ 41'25	0°-20'-24
min. Earth dist.	3691 Oct 18 05:12	26° $\Upsilon$ 46'17	19.06353 AU	minimum elong	3699 May 16 04:23	26° $\text{♄}$ 41'25	0°20'26
opposition	3691 Oct 19 01:48	26° $\Upsilon$ 44'13	0°-41'-53	max. Earth dist.	3699 May 16 17:32	26° $\text{♄}$ 43'18	20.90040 AU
direct	3692 Jan 02 13:03	24° $\Upsilon$ 47'50			3699 Jul 22 08:10	0° $\text{♄}$	
				retrograde	3699 Sep 04 04:19	0° $\text{♄}$ 45'51	
conjunction	3692 Apr 17 01:29	28° $\Upsilon$ 40'14	0°-37'-3		3699 Oct 18 19:19	30° $\text{♄}$	
minimum elong	3692 Apr 17 01:30	28° $\Upsilon$ 40'14	0°37'05	opposition	3699 Nov 20 11:29	28° $\text{♄}$ 45'47	0°-20'-55
max. Earth dist.	3692 Apr 17 23:29	28° $\Upsilon$ 43'22	21.06097 AU	min. Earth dist.	3699 Nov 19 23:37	28° $\text{♄}$ 47'00	18.88019 AU
	3692 May 10 17:47	0° $\text{♄}$		direct	3700 Feb 03 09:54	26° $\text{♄}$ 48'29	
retrograde	3692 Aug 05 10:49	2° $\text{♄}$ 41'40			3700 May 07 15:16	0° $\text{♄}$	
opposition	3692 Oct 22 09:02	0° $\text{♄}$ 42'23	0°-39'-53				
min. Earth dist.	3692 Oct 21 13:29	0° $\text{♄}$ 44'21	19.05805 AU	conjunction	3700 May 20 13:38	0° $\text{♄}$ 44'20	0°-17'-30
	3692 Nov 09 08:08	30° $\text{♄}$		minimum elong	3700 May 20 13:38	0° $\text{♄}$ 44'20	0°17'30
direct	3693 Jan 05 17:37	28° $\Upsilon$ 46'03		max. Earth dist.	3700 May 21 02:33	0° $\text{♄}$ 46'11	20.85907 AU
	3693 Mar 01 15:28	0° $\text{♄}$		retrograde	3700 Sep 08 13:07	4° $\text{♄}$ 49'21	
conjunction	3693 Apr 21 07:19	2° $\text{♄}$ 38'35	0°-35'-9	opposition	3700 Nov 24 18:59	2° $\text{♄}$ 49'07	0°-17'-39
minimum elong	3693 Apr 21 07:19	2° $\text{♄}$ 38'35	0°35'10	min. Earth dist.	3700 Nov 24 08:17	2° $\text{♄}$ 50'12	18.83725 AU
max. Earth dist.	3693 Apr 22 03:53	2° $\text{♄}$ 41'31	21.05341 AU	direct	3701 Feb 07 16:20	0° $\text{♄}$ 51'34	
retrograde	3693 Aug 09 20:14	6° $\text{♄}$ 40'21					
opposition	3693 Oct 26 16:11	4° $\text{♄}$ 41'02	0°-37'-41	conjunction	3701 May 24 23:20	4° $\text{♄}$ 48'11	0°-14'-29
min. Earth dist.	3693 Oct 25 21:06	4° $\text{♄}$ 42'57	19.04811 AU	minimum elong	3701 May 24 23:20	4° $\text{♄}$ 48'11	0°14'31
direct	3694 Jan 09 22:46	2° $\text{♄}$ 44'41		behind sun begin	3701 May 24 20:30	4° $\text{♄}$ 47'47	
				behind sun end	3701 May 25 02:10	4° $\text{♄}$ 48'35	
conjunction	3694 Apr 25 13:46	6° $\text{♄}$ 37'29	0°-33'-5	max. Earth dist.	3701 May 25 10:05	4° $\text{♄}$ 49'43	20.81479 AU
minimum elong	3694 Apr 25 13:47	6° $\text{♄}$ 37'29	0°33'06	retrograde	3701 Sep 13 00:31	8° $\text{♄}$ 53'50	
max. Earth dist.	3694 Apr 26 10:09	6° $\text{♄}$ 40'23	21.04092 AU	opposition	3701 Nov 29 02:43	6° $\text{♄}$ 53'25	0°-14'-16
retrograde	3694 Aug 14 04:44	10° $\text{♄}$ 39'35		min. Earth dist.	3701 Nov 28 17:10	6° $\text{♄}$ 54'23	18.79158 AU
opposition	3694 Oct 30 23:12	8° $\text{♄}$ 40'14	0°-35'-18	direct	3702 Feb 11 23:14	4° $\text{♄}$ 55'35	
min. Earth dist.	3694 Oct 30 05:34	8° $\text{♄}$ 42'01	19.03300 AU				
direct	3695 Jan 14 04:03	6° $\text{♄}$ 43'51		conjunction	3702 May 29 09:54	8° $\text{♄}$ 53'06	0°-11'-24
				minimum elong	3702 May 29 09:54	8° $\text{♄}$ 53'06	0°11'25
conjunction	3695 Apr 29 20:36	10° $\text{♄}$ 36'59	0°-30'-50	behind sun begin	3702 May 29 05:05	8° $\text{♄}$ 52'25	
minimum elong	3695 Apr 29 20:36	10° $\text{♄}$ 36'59	0°30'51	behind sun end	3702 May 29 14:43	8° $\text{♄}$ 53'46	
max. Earth dist.	3695 Apr 30 14:58	10° $\text{♄}$ 39'36	21.02326 AU	max. Earth dist.	3702 May 29 20:20	8° $\text{♄}$ 54'35	20.76776 AU
retrograde	3695 Aug 18 14:20	14° $\text{♄}$ 39'30		retrograde	3702 Sep 17 10:25	12° $\text{♄}$ 59'24	
opposition	3695 Nov 04 06:24	12° $\text{♄}$ 40'04	0°-32'-44	opposition	3702 Dec 03 10:34	10° $\text{♄}$ 58'50	0°-10'-48
min. Earth dist.	3695 Nov 03 13:36	12° $\text{♄}$ 41'45	19.01259 AU	min. Earth dist.	3702 Dec 03 02:09	10° $\text{♄}$ 59'42	18.74331 AU
direct	3696 Jan 18 09:10	10° $\text{♄}$ 43'35		direct	3703 Feb 16 06:12	9° $\text{♄}$ 00'45	
conjunction	3696 May 03 03:49	14° $\text{♄}$ 37'06	0°-28'-26	conjunction	3703 Jun 02 20:58	12° $\text{♄}$ 59'12	0°-8'-15
minimum elong	3696 May 03 03:50	14° $\text{♄}$ 37'06	0°28'27	minimum elong	3703 Jun 02 20:59	12° $\text{♄}$ 59'12	0°08'16
max. Earth dist.	3696 May 03 21:45	14° $\text{♄}$ 39'40	21.00003 AU	behind sun begin	3703 Jun 02 15:04	12° $\text{♄}$ 58'23	
	3696 May 09 20:00	15° $\text{♄}$		behind sun end	3703 Jun 03 02:53	13° $\text{♄}$ 00'02	
retrograde	3696 Aug 21 23:10	18° $\text{♄}$ 40'04		max. Earth dist.	3703 Jun 03 05:05	13° $\text{♄}$ 00'21	20.71851 AU
opposition	3696 Nov 07 13:42	16° $\text{♄}$ 40'30	0°-30'00	retrograde	3703 Sep 21 22:27	17° $\text{♄}$ 06'14	
min. Earth dist.	3696 Nov 06 22:20	16° $\text{♄}$ 42'04	18.98657 AU	opposition	3703 Dec 07 18:55	15° $\text{♄}$ 05'32	0°-7'-16
	3696 Dec 27 07:31	15° $\text{♄}$		min. Earth dist.	3703 Dec 07 11:47	15° $\text{♄}$ 06'17	18.69303 AU
direct	3697 Jan 21 15:25	14° $\text{♄}$ 43'54		direct	3704 Feb 20 13:27	13° $\text{♄}$ 07'11	
	3697 Feb 15 14:55	15° $\text{♄}$					
conjunction	3697 May 07 11:33	18° $\text{♄}$ 37'53	0°-25'-53	conjunction	3704 Jun 06 08:51	17° $\text{♄}$ 06'41	0°-5'-2
minimum elong	3697 May 07 11:33	18° $\text{♄}$ 37'53	0°25'55	minimum elong	3704 Jun 06 08:50	17° $\text{♄}$ 06'41	0°05'04
max. Earth dist.	3697 May 08 03:17	18° $\text{♄}$ 40'07	20.97154 AU	behind sun begin	3704 Jun 06 02:19	17° $\text{♄}$ 05'46	
				behind sun end	3704 Jun 06 15:21	17° $\text{♄}$ 07'36	
				max. Earth dist.	3704 Jun 06 16:40	17° $\text{♄}$ 07'47	20.66718 AU

retrograde	3704 Sep 25 10:20	21°II14'28		direct	3711 Mar 21 09:53	12°☾37'03	
opposition	3704 Dec 11 03:39	19°II13'40	0°-3'-40				
min. Earth dist.	3704 Dec 10 21:36	19°II14'17	18.64064 AU	conjunction	3711 Jul 07 20:59	16°☾45'36	0°17'57
direct	3705 Feb 23 21:25	17°II15'03		minimum elong	3711 Jul 07 20:59	16°☾45'36	0°17'57
				max. Earth dist.	3711 Jul 07 14:25	16°☾44'39	20.24500 AU
conjunction	3705 Jun 10 21:33	21°II15'40	0°-1'-46	retrograde	3711 Oct 26 18:39	20°☾59'17	
minimum elong	3705 Jun 10 21:34	21°II15'40	0°01'46	opposition	3712 Jan 10 06:34	18°☾57'37	0°21'39
behind sun begin	3705 Jun 10 14:51	21°II14'43		min. Earth dist.	3712 Jan 10 12:27	18°☾57'00	18.21083 AU
behind sun end	3705 Jun 11 04:17	21°II16'37		direct	3712 Mar 24 22:01	16°☾56'37	
max. Earth dist.	3705 Jun 11 02:47	21°II16'23	20.61392 AU				
retrograde	3705 Sep 29 23:30	25°II24'15		conjunction	3712 Jul 11 15:52	21°☾06'37	0°21'04
opposition	3705 Dec 15 12:43	23°II23'21	0°00'-2	minimum elong	3712 Jul 11 15:52	21°☾06'37	0°21'04
min. Earth dist.	3705 Dec 15 08:21	23°II23'48	18.58636 AU	max. Earth dist.	3712 Jul 11 08:36	21°☾05'33	20.17681 AU
asc. node	3705 Dec 21 07:42	23°II08'54		retrograde	3712 Oct 30 12:21	25°☾21'08	
direct	3706 Feb 28 05:27	21°II24'28		opposition	3713 Jan 13 19:26	23°☾19'18	0°25'03
				min. Earth dist.	3713 Jan 14 02:07	23°☾18'35	18.14233 AU
conjunction	3706 Jun 15 11:20	25°II26'18	0°01'38	direct	3713 Mar 29 12:13	21°☾17'51	
minimum elong	3706 Jun 15 11:20	25°II26'18	0°01'37				
behind sun begin	3706 Jun 15 04:37	25°II25'20		conjunction	3713 Jul 16 11:32	25°☾29'19	0°24'03
behind sun end	3706 Jun 15 18:04	25°II27'15		minimum elong	3713 Jul 16 11:32	25°☾29'19	0°24'03
max. Earth dist.	3706 Jun 15 15:59	25°II26'56	20.55852 AU	max. Earth dist.	3713 Jul 16 01:25	25°☾27'49	20.10825 AU
retrograde	3706 Oct 04 13:10	29°II35'42		retrograde	3713 Nov 04 05:08	29°☾44'42	
opposition	3706 Dec 19 22:18	27°II34'43	0°03'36	opposition	3714 Jan 18 08:53	27°☾42'41	0°28'19
min. Earth dist.	3706 Dec 19 19:12	27°II35'03	18.52977 AU	min. Earth dist.	3714 Jan 18 17:50	27°☾41'43	18.07399 AU
direct	3707 Mar 04 14:32	25°II35'34		direct	3714 Apr 03 01:11	25°☾40'48	
conjunction	3707 Jun 20 01:43	29°II38'39	0°04'57	conjunction	3714 Jul 21 08:06	29°☾53'46	0°26'56
minimum elong	3707 Jun 20 01:42	29°II38'39	0°04'58	minimum elong	3714 Jul 21 08:06	29°☾53'46	0°26'56
behind sun begin	3707 Jun 19 19:09	29°II37'43		max. Earth dist.	3714 Jul 20 21:23	29°☾52'11	20.04020 AU
behind sun end	3707 Jun 20 08:15	29°II39'35			3714 Jul 23 01:48	0°♂	
max. Earth dist.	3707 Jun 20 03:24	29°II38'52	20.50080 AU	retrograde	3714 Nov 09 00:26	4°♂09'58	
	3707 Jun 26 04:10	0°☾		opposition	3715 Jan 22 22:58	2°♂07'48	0°31'27
retrograde	3707 Oct 09 03:37	3°☾48'56		min. Earth dist.	3715 Jan 23 08:20	2°♂06'47	18.00645 AU
opposition	3707 Dec 24 08:32	1°☾47'51	0°07'17	direct	3715 Apr 07 17:18	0°♂05'30	
min. Earth dist.	3707 Dec 24 07:27	1°☾47'58	18.47084 AU				
	3708 Feb 15 20:38	30°♂II		conjunction	3715 Jul 26 05:07	4°♂19'58	0°29'40
direct	3708 Mar 08 00:00	29°II48'23		minimum elong	3715 Jul 26 05:06	4°♂19'58	0°29'40
	3708 Mar 28 22:49	0°☾		max. Earth dist.	3715 Jul 25 16:07	4°♂18'01	19.97330 AU
				retrograde	3715 Nov 13 17:44	8°♂37'01	
conjunction	3708 Jun 23 17:18	3°☾52'47	0°08'15	opposition	3716 Jan 27 13:51	6°♂34'41	0°34'24
minimum elong	3708 Jun 23 17:18	3°☾52'47	0°08'15	min. Earth dist.	3716 Jan 28 01:16	6°♂33'28	17.94054 AU
behind sun begin	3708 Jun 23 11:22	3°☾51'57		direct	3716 Apr 11 07:37	4°♂32'00	
behind sun end	3708 Jun 23 23:14	3°☾53'38					
max. Earth dist.	3708 Jun 23 18:08	3°☾52'54	20.44050 AU	conjunction	3716 Jul 30 03:12	8°♂47'58	0°32'14
retrograde	3708 Oct 12 18:42	8°☾03'55		minimum elong	3716 Jul 30 03:12	8°♂47'58	0°32'13
opposition	3708 Dec 27 19:09	6°☾02'44	0°10'57	max. Earth dist.	3716 Jul 29 13:38	8°♂45'56	19.90838 AU
min. Earth dist.	3708 Dec 27 19:23	6°☾02'42	18.40918 AU	retrograde	3716 Nov 17 14:08	13°♂05'50	
direct	3709 Mar 12 10:31	4°☾02'56		opposition	3717 Jan 31 05:09	11°♂03'24	0°37'10
				min. Earth dist.	3717 Jan 31 16:45	11°♂02'08	17.87677 AU
conjunction	3709 Jun 28 09:39	8°☾08'41	0°11'32	direct	3717 Apr 16 01:42	9°♂00'20	
minimum elong	3709 Jun 28 09:39	8°☾08'41	0°11'32	max. Earth dist.	3717 Aug 03 10:31	13°♂15'29	19.84581 AU
behind sun begin	3709 Jun 28 04:53	8°☾08'00					
behind sun end	3709 Jun 28 14:26	8°☾09'22		conjunction	3717 Aug 04 02:03	13°♂17'49	0°34'37
max. Earth dist.	3709 Jun 28 07:10	8°☾08'20	20.37757 AU	minimum elong	3717 Aug 04 02:03	13°♂17'49	0°34'37
retrograde	3709 Oct 17 10:12	12°☾20'40			3717 Sep 01 23:46	15°♂	
opposition	3710 Jan 01 06:29	10°☾19'20	0°14'34	retrograde	3717 Nov 22 08:20	17°♂36'29	
min. Earth dist.	3710 Jan 01 08:59	10°☾19'04	18.34500 AU	opposition	3718 Feb 04 21:27	15°♂33'59	0°39'43
direct	3710 Mar 16 21:37	8°☾19'09		min. Earth dist.	3718 Feb 05 11:02	15°♂32'30	17.81567 AU
					3718 Feb 18 03:15	15°♂♂	
conjunction	3710 Jul 03 03:01	12°☾26'18	0°14'46	direct	3718 Apr 20 17:45	13°♂30'35	
minimum elong	3710 Jul 03 03:01	12°☾26'18	0°14'47		3718 Jun 19 11:14	15°♂	
behind sun begin	3710 Jul 03 00:34	12°☾25'57		max. Earth dist.	3718 Aug 08 09:20	17°♂47'06	19.78613 AU
behind sun end	3710 Jul 03 05:28	12°☾26'39					
max. Earth dist.	3710 Jul 02 23:35	12°☾25'48	20.31218 AU	conjunction	3718 Aug 09 01:36	17°♂49'34	0°36'48
retrograde	3710 Oct 22 02:22	16°☾39'07		minimum elong	3718 Aug 09 01:35	17°♂49'34	0°36'47
opposition	3711 Jan 05 18:11	14°☾37'38	0°18'09	retrograde	3718 Nov 27 05:57	22°♂09'00	
min. Earth dist.	3711 Jan 05 21:48	14°☾37'15	18.27856 AU	opposition	3719 Feb 09 14:17	20°♂06'27	0°42'03



min. Earth dist.	3719 Feb 10 03:53	20°04'59	17.75742 AU	min. Earth dist.	3727 Mar 19 03:58	27°02'150	17.39532 AU
direct	3719 Apr 25 14:00	18°02'46		direct	3727 Jun 01 23:18	25°02'18'10	
max. Earth dist.	3719 Aug 13 08:14	22°02'033	19.72928 AU	max. Earth dist.	3727 Sep 21 00:32	29°02'43'55	19.38026 AU
conjunction	3719 Aug 14 01:56	22°02'23'14	0°38'46	conjunction	3727 Sep 22 00:29	29°02'47'40	0°44'59
minimum elong	3719 Aug 14 01:56	22°02'23'14	0°38'46	minimum elong	3727 Sep 22 00:29	29°02'47'40	0°44'59
retrograde	3719 Dec 02 01:21	26°02'43'25			3727 Sep 25 07:32	0°02'	
opposition	3720 Feb 14 07:59	24°02'40'52	0°44'08	retrograde	3728 Jan 08 18:08	4°02'11'20	
min. Earth dist.	3720 Feb 14 23:40	24°02'39'09	17.70210 AU	opposition	3728 Mar 22 06:08	2°02'08'30	0°49'52
direct	3720 Apr 29 07:47	22°02'36'53		min. Earth dist.	3728 Mar 23 03:04	2°02'06'12	17.36734 AU
max. Earth dist.	3720 Aug 17 08:08	26°02'55'54	19.67534 AU	direct	3728 Jun 05 23:48	0°02'02'24	
				max. Earth dist.	3728 Sep 25 03:15	4°02'28'37	19.35506 AU
conjunction	3720 Aug 18 03:03	26°02'58'47	0°40'30				
minimum elong	3720 Aug 18 03:03	26°02'58'47	0°40'31	conjunction	3728 Sep 26 04:17	4°02'32'31	0°44'24
	3720 Oct 11 09:56	0°02'		minimum elong	3728 Sep 26 04:17	4°02'32'31	0°44'24
retrograde	3720 Dec 06 00:21	1°02'19'40		retrograde	3729 Jan 12 17:48	8°02'56'18	
	3721 Feb 01 07:26	30°02'02'		opposition	3729 Mar 27 05:22	6°02'53'27	0°49'04
opposition	3721 Feb 18 02:23	29°02'17'06	0°45'57	min. Earth dist.	3729 Mar 28 02:07	6°02'51'10	17.34508 AU
min. Earth dist.	3721 Feb 18 18:12	29°02'15'23	17.64945 AU	direct	3729 Jun 11 02:13	4°02'47'11	
direct	3721 May 04 05:45	27°02'12'51		max. Earth dist.	3729 Sep 30 08:35	9°02'14'09	19.33572 AU
	3721 Jul 27 11:45	0°02'					
max. Earth dist.	3721 Aug 22 08:56	1°02'33'04	19.62380 AU	conjunction	3729 Oct 01 08:07	9°02'17'50	0°43'32
				minimum elong	3729 Oct 01 08:08	9°02'17'50	0°43'32
conjunction	3721 Aug 23 04:57	1°02'36'08	0°42'00	retrograde	3730 Jan 17 17:28	13°02'41'39	
minimum elong	3721 Aug 23 04:57	1°02'36'08	0°42'00	opposition	3730 Apr 01 05:04	11°02'38'49	0°47'56
retrograde	3721 Dec 10 21:29	5°02'57'38		min. Earth dist.	3730 Apr 02 01:19	11°02'36'36	17.32882 AU
opposition	3722 Feb 22 21:39	3°02'55'03	0°47'28	direct	3730 Jun 16 04:15	9°02'32'28	
min. Earth dist.	3722 Feb 23 15:30	3°02'53'07	17.59927 AU	max. Earth dist.	3730 Oct 05 11:44	13°02'59'46	19.32274 AU
direct	3722 May 09 01:44	1°02'50'31					
max. Earth dist.	3722 Aug 27 09:41	6°02'11'46	19.57493 AU	conjunction	3730 Oct 06 11:44	14°02'03'32	0°42'21
				minimum elong	3730 Oct 06 11:44	14°02'03'32	0°42'21
conjunction	3722 Aug 28 07:19	6°02'15'05	0°43'13	retrograde	3731 Jan 22 16:55	18°02'27'20	
minimum elong	3722 Aug 28 07:19	6°02'15'05	0°43'14	opposition	3731 Apr 06 05:07	16°02'24'34	0°46'28
retrograde	3722 Dec 15 21:14	10°02'37'09		min. Earth dist.	3731 Apr 07 01:08	16°02'22'22	17.31921 AU
opposition	3723 Feb 27 17:34	8°02'34'33	0°48'42	direct	3731 Jun 21 06:58	14°02'18'10	
min. Earth dist.	3723 Feb 28 11:29	8°02'32'36	17.55177 AU				
direct	3723 May 14 00:52	6°02'29'43		conjunction	3731 Oct 11 15:15	18°02'49'32	0°40'53
				minimum elong	3731 Oct 11 15:15	18°02'49'32	0°40'53
conjunction	3723 Sep 02 10:07	10°02'55'28	0°44'10	max. Earth dist.	3731 Oct 10 16:51	18°02'46'01	19.31641 AU
minimum elong	3723 Sep 02 10:07	10°02'55'28	0°44'10	retrograde	3732 Jan 27 17:07	23°02'13'14	
max. Earth dist.	3723 Sep 01 12:05	10°02'52'05	19.52870 AU	opposition	3732 Apr 10 05:31	21°02'10'36	0°44'41
retrograde	3723 Dec 20 19:42	15°02'18'01		min. Earth dist.	3732 Apr 11 00:28	21°02'08'32	17.31594 AU
opposition	3724 Mar 03 14:16	13°02'15'22	0°49'37	direct	3732 Jun 25 10:24	19°02'04'16	
min. Earth dist.	3724 Mar 04 09:48	13°02'13'14	17.50707 AU				
direct	3724 May 17 22:25	11°02'10'16		conjunction	3732 Oct 15 18:34	23°02'35'47	0°39'08
				minimum elong	3732 Oct 15 18:34	23°02'35'47	0°39'09
conjunction	3724 Sep 06 13:22	15°02'37'06	0°44'50	max. Earth dist.	3732 Oct 14 20:16	23°02'32'17	19.31632 AU
minimum elong	3724 Sep 06 13:22	15°02'37'06	0°44'50	retrograde	3733 Jan 31 16:16	27°02'59'21	
max. Earth dist.	3724 Sep 05 13:34	15°02'33'25	19.48565 AU	opposition	3733 Apr 15 06:13	25°02'56'52	0°42'35
retrograde	3724 Dec 24 19:45	20°02'00'03		min. Earth dist.	3733 Apr 16 01:13	25°02'54'48	17.31892 AU
opposition	3725 Mar 08 11:19	17°02'57'21	0°50'11	direct	3733 Jun 30 13:15	23°02'50'36	
min. Earth dist.	3725 Mar 09 06:54	17°02'55'12	17.46577 AU				
direct	3725 May 22 22:46	15°02'51'57		conjunction	3733 Oct 20 21:41	28°02'22'11	0°37'08
				minimum elong	3733 Oct 20 21:41	28°02'22'11	0°37'07
conjunction	3725 Sep 11 17:03	20°02'19'48	0°45'11	max. Earth dist.	3733 Oct 20 00:43	28°02'18'53	19.32226 AU
minimum elong	3725 Sep 11 17:03	20°02'19'48	0°45'11		3733 Nov 16 08:14	0°02'	
max. Earth dist.	3725 Sep 10 17:32	20°02'16'09	19.44612 AU	retrograde	3734 Feb 05 17:11	2°02'45'31	
retrograde	3725 Dec 29 18:53	24°02'43'03		opposition	3734 Apr 20 07:15	0°02'43'13	0°40'12
opposition	3726 Mar 13 09:10	22°02'40'18	0°50'26	min. Earth dist.	3734 Apr 21 00:49	0°02'41'18	17.32752 AU
min. Earth dist.	3726 Mar 14 05:50	22°02'38'03	17.42826 AU		3734 May 07 05:31	30°02'02'	
direct	3726 May 27 21:51	20°02'34'39		direct	3734 Jul 05 17:31	28°02'37'05	
					3734 Aug 31 22:46	0°02'	
conjunction	3726 Sep 16 20:34	25°02'03'22	0°45'14	max. Earth dist.	3734 Oct 25 04:03	3°02'05'21	19.33352 AU
minimum elong	3726 Sep 16 20:34	25°02'03'22	0°45'14				
max. Earth dist.	3726 Sep 15 19:37	24°02'59'29	19.41081 AU	conjunction	3734 Oct 26 00:17	3°02'08'32	0°34'52
retrograde	3727 Jan 03 18:41	29°02'26'53		minimum elong	3734 Oct 26 00:17	3°02'08'32	0°34'52
opposition	3727 Mar 18 07:26	27°02'24'04	0°50'20	retrograde	3735 Feb 10 16:08	7°02'31'35	

opposition	3735 Apr 25 08:36	5° <del>ℓ</del> 29'27	0°37'32	conjunction	3742 Dec 03 00:13	10° <del>♊</del> 51'41	0°10'01
min. Earth dist.	3735 Apr 26 02:22	5° <del>ℓ</del> 27'31	17.34138 AU	minimum elong	3742 Dec 03 00:13	10° <del>♊</del> 51'41	0°10'02
direct	3735 Jul 10 19:42	3° <del>ℓ</del> 23'26		behind sun begin	3742 Dec 02 18:52	10° <del>♊</del> 50'52	
max. Earth dist.	3735 Oct 30 07:15	7° <del>ℓ</del> 51'36	19.34984 AU	behind sun end	3742 Dec 03 05:35	10° <del>♊</del> 52'30	
				max. Earth dist.	3742 Dec 02 15:20	10° <del>♊</del> 50'19	19.58184 AU
conjunction	3735 Oct 31 02:38	7° <del>ℓ</del> 54'39	0°32'21	retrograde	3743 Mar 20 02:01	15° <del>♊</del> 09'38	
minimum elong	3735 Oct 31 02:38	7° <del>ℓ</del> 54'39	0°32'22	opposition	3743 Jun 02 16:52	13° <del>♊</del> 08'26	0°09'09
retrograde	3736 Feb 15 17:37	12° <del>ℓ</del> 17'18		min. Earth dist.	3743 Jun 03 00:50	13° <del>♊</del> 07'36	17.60624 AU
opposition	3736 Apr 29 09:49	10° <del>ℓ</del> 15'19	0°34'37	direct	3743 Aug 18 19:58	11° <del>♊</del> 03'54	
min. Earth dist.	3736 Apr 30 01:55	10° <del>ℓ</del> 13'35	17.35989 AU				
direct	3736 Jul 15 00:18	8° <del>ℓ</del> 09'28		conjunction	3743 Dec 07 20:26	15° <del>♊</del> 28'18	0°06'28
max. Earth dist.	3736 Nov 03 10:24	12° <del>ℓ</del> 37'26	19.37057 AU	minimum elong	3743 Dec 07 20:26	15° <del>♊</del> 28'18	0°06'27
				behind sun begin	3743 Dec 07 14:12	15° <del>♊</del> 27'21	
conjunction	3736 Nov 04 04:34	12° <del>ℓ</del> 40'17	0°29'38	behind sun end	3743 Dec 08 02:40	15° <del>♊</del> 29'15	
minimum elong	3736 Nov 04 04:34	12° <del>ℓ</del> 40'17	0°29'38	max. Earth dist.	3743 Dec 07 12:23	15° <del>♊</del> 27'04	19.63192 AU
	3736 Dec 12 23:39	15° <del>ℓ</del>		retrograde	3744 Mar 23 22:02	19° <del>♊</del> 45'26	
retrograde	3737 Feb 19 15:54	17° <del>ℓ</del> 02'27		opposition	3744 Jun 06 16:28	17° <del>♊</del> 44'22	0°05'09
opposition	3737 May 04 11:26	15° <del>ℓ</del> 00'38	0°31'27	min. Earth dist.	3744 Jun 06 22:05	17° <del>♊</del> 43'47	17.65854 AU
	3737 May 04 17:17	15° <del>ℓ</del>		direct	3744 Aug 22 21:06	15° <del>♊</del> 40'08	
min. Earth dist.	3737 May 05 03:41	14° <del>ℓ</del> 58'53	17.38280 AU				
direct	3737 Jul 20 01:55	12° <del>ℓ</del> 54'55		conjunction	3744 Dec 11 15:59	20° <del>♊</del> 03'17	0°02'52
	3737 Sep 29 16:42	15° <del>ℓ</del>		minimum elong	3744 Dec 11 15:59	20° <del>♊</del> 03'17	0°02'53
				behind sun begin	3744 Dec 11 09:24	20° <del>♊</del> 02'17	
conjunction	3737 Nov 09 05:41	17° <del>ℓ</del> 25'12	0°26'43	behind sun end	3744 Dec 11 22:34	20° <del>♊</del> 04'17	
minimum elong	3737 Nov 09 05:41	17° <del>ℓ</del> 25'12	0°26'43	max. Earth dist.	3744 Dec 11 11:03	20° <del>♊</del> 02'33	19.68637 AU
max. Earth dist.	3737 Nov 08 12:08	17° <del>ℓ</del> 22'26	19.39565 AU	retrograde	3745 Mar 28 16:59	24° <del>♊</del> 19'34	
retrograde	3738 Feb 24 16:51	21° <del>ℓ</del> 46'49		opposition	3745 Jun 11 15:54	22° <del>♊</del> 18'41	0°01'09
opposition	3738 May 09 12:50	19° <del>ℓ</del> 45'07	0°28'06	min. Earth dist.	3745 Jun 11 19:54	22° <del>♊</del> 18'16	17.71489 AU
min. Earth dist.	3738 May 10 03:04	19° <del>ℓ</del> 43'36	17.40984 AU	direct	3745 Aug 27 21:16	20° <del>♊</del> 14'49	
direct	3738 Jul 25 06:34	17° <del>ℓ</del> 39'35		desc. node	3745 Sep 25 20:04	20° <del>♊</del> 36'32	
conjunction	3738 Nov 14 06:19	22° <del>ℓ</del> 09'10	0°23'37	conjunction	3745 Dec 16 10:21	24° <del>♊</del> 36'39	0°00'-48
minimum elong	3738 Nov 14 06:19	22° <del>ℓ</del> 09'10	0°23'37	minimum elong	3745 Dec 16 10:21	24° <del>♊</del> 36'39	0°00'49
max. Earth dist.	3738 Nov 13 14:41	22° <del>ℓ</del> 06'43	19.42471 AU	behind sun begin	3745 Dec 16 03:46	24° <del>♊</del> 35'39	
retrograde	3739 Mar 01 14:06	26° <del>ℓ</del> 30'10		behind sun end	3745 Dec 16 16:56	24° <del>♊</del> 37'38	
opposition	3739 May 14 14:10	24° <del>ℓ</del> 28'36	0°24'33	max. Earth dist.	3745 Dec 16 06:26	24° <del>♊</del> 36'05	19.74468 AU
min. Earth dist.	3739 May 15 04:20	24° <del>ℓ</del> 27'04	17.44091 AU	retrograde	3746 Apr 02 12:06	28° <del>♊</del> 52'06	
direct	3739 Jul 30 08:08	22° <del>ℓ</del> 23'13		opposition	3746 Jun 16 14:47	26° <del>♊</del> 51'25	0°-2'-49
				min. Earth dist.	3746 Jun 16 16:46	26° <del>♊</del> 51'12	17.77495 AU
conjunction	3739 Nov 19 06:03	26° <del>ℓ</del> 52'00	0°20'22	direct	3746 Sep 01 20:09	24° <del>♊</del> 47'55	
minimum elong	3739 Nov 19 06:03	26° <del>ℓ</del> 51'59	0°20'23				
max. Earth dist.	3739 Nov 18 14:53	26° <del>ℓ</del> 49'37	19.45788 AU	conjunction	3746 Dec 21 04:11	29° <del>♊</del> 08'25	0°-4'-25
	3740 Jan 13 14:24	0° <del>♊</del>		minimum elong	3746 Dec 21 04:10	29° <del>♊</del> 08'25	0°04'26
retrograde	3740 Mar 05 13:28	1° <del>♊</del> 12'18		behind sun begin	3746 Dec 20 21:41	29° <del>♊</del> 07'27	
	3740 Apr 28 21:26	30° <del>♋</del>		behind sun end	3746 Dec 21 10:38	29° <del>♊</del> 09'24	
opposition	3740 May 18 15:13	29° <del>ℓ</del> 10'49	0°20'51	max. Earth dist.	3746 Dec 21 03:10	29° <del>♊</del> 08'18	19.80624 AU
min. Earth dist.	3740 May 19 03:14	29° <del>ℓ</del> 09'32	17.47596 AU		3747 Jan 04 03:17	0° <del>♋</del>	
direct	3740 Aug 03 12:57	27° <del>ℓ</del> 05'37		retrograde	3747 Apr 07 06:28	3° <del>♋</del> 23'00	
	3740 Oct 28 21:01	0° <del>♊</del>		opposition	3747 Jun 21 13:03	1° <del>♋</del> 22'33	0°-6'-46
				min. Earth dist.	3747 Jun 21 13:21	1° <del>♋</del> 22'31	17.83769 AU
conjunction	3740 Nov 23 05:06	1° <del>♊</del> 33'27	0°17'00		3747 Jul 27 16:51	30° <del>♋</del>	
minimum elong	3740 Nov 23 05:05	1° <del>♊</del> 33'27	0°17'01	direct	3747 Sep 06 18:58	29° <del>♊</del> 19'29	
max. Earth dist.	3740 Nov 22 16:27	1° <del>♊</del> 31'29	19.49493 AU		3747 Oct 16 15:04	0° <del>♋</del>	
retrograde	3741 Mar 10 09:16	5° <del>♊</del> 53'01					
opposition	3741 May 23 16:08	3° <del>♊</del> 51'37	0°17'02	conjunction	3747 Dec 25 21:01	3° <del>♋</del> 38'35	0°-7'-55
min. Earth dist.	3741 May 24 03:38	3° <del>♊</del> 50'24	17.51501 AU	minimum elong	3747 Dec 25 21:01	3° <del>♋</del> 38'36	0°07'55
direct	3741 Aug 08 14:55	1° <del>♊</del> 46'37		behind sun begin	3747 Dec 25 15:06	3° <del>♋</del> 37'42	
				behind sun end	3747 Dec 26 02:56	3° <del>♋</del> 39'29	
conjunction	3741 Nov 28 03:04	6° <del>♊</del> 13'23	0°13'33	max. Earth dist.	3747 Dec 25 20:54	3° <del>♋</del> 38'35	19.87011 AU
minimum elong	3741 Nov 28 03:04	6° <del>♊</del> 13'23	0°13'33	retrograde	3748 Apr 11 00:33	7° <del>♋</del> 52'20	
behind sun begin	3741 Nov 27 23:21	6° <del>♊</del> 12'49		opposition	3748 Jun 25 10:59	5° <del>♋</del> 52'06	0°-10'-39
behind sun end	3741 Nov 28 06:47	6° <del>♊</del> 13'57		min. Earth dist.	3748 Jun 25 09:47	5° <del>♋</del> 52'13	17.90254 AU
max. Earth dist.	3741 Nov 27 15:08	6° <del>♊</del> 11'32	19.53621 AU	direct	3748 Sep 10 16:11	3° <del>♋</del> 49'26	
retrograde	3742 Mar 15 06:56	10° <del>♋</del> 32'10					
opposition	3742 May 28 16:39	8° <del>♋</del> 30'51	0°13'08	conjunction	3748 Dec 29 13:06	8° <del>♋</del> 07'08	0°-11'-22
min. Earth dist.	3742 May 29 01:44	8° <del>♋</del> 29'53	17.55846 AU	minimum elong	3748 Dec 29 13:06	8° <del>♋</del> 07'08	0°11'23
direct	3742 Aug 13 18:31	6° <del>♋</del> 26'04		behind sun begin	3748 Dec 29 08:16	8° <del>♋</del> 06'25	

behind sun end	3748 Dec 29 17:56	8°♄07'52		minimum elong	3757 Feb 01 16:15	12°♄51'08	0°34'25
max. Earth dist.	3748 Dec 29 15:31	8°♄07'30	19.93563 AU	max. Earth dist.	3757 Feb 02 06:01	12°♄53'11	20.44981 AU
retrograde	3749 Apr 15 18:11	12°♄20'02			3757 Mar 11 10:29	15°♄	
opposition	3749 Jun 30 08:24	10°♄20'00	0°-14'-27	retrograde	3757 May 20 15:42	16°♄57'25	
min. Earth dist.	3749 Jun 30 05:17	10°♄20'19	17.96849 AU		3757 Aug 04 17:33	15°♄	
direct	3749 Sep 15 13:39	8°♄17'46		opposition	3757 Aug 05 11:41	14°♄58'10	0°-39'-18
				min. Earth dist.	3757 Aug 04 20:56	14°♄59'39	18.48019 AU
conjunction	3750 Jan 03 04:20	12°♄34'01	0°-14'-44	direct	3757 Oct 21 12:53	12°♄58'38	
minimum elong	3750 Jan 03 04:20	12°♄34'01	0°14'44		3757 Dec 31 22:21	15°♄	
behind sun begin	3750 Jan 03 01:29	12°♄33'36					
behind sun end	3750 Jan 03 07:11	12°♄34'27		conjunction	3758 Feb 06 01:12	17°♄03'20	0°-36'-30
max. Earth dist.	3750 Jan 03 07:39	12°♄34'31	20.00194 AU	minimum elong	3758 Feb 06 01:12	17°♄03'20	0°36'30
retrograde	3750 Apr 20 11:09	16°♄46'04		max. Earth dist.	3758 Feb 06 16:29	17°♄05'37	20.51027 AU
opposition	3750 Jul 05 05:14	14°♄46'13	0°-18'-8	retrograde	3758 May 25 01:40	21°♄08'57	
min. Earth dist.	3750 Jul 05 01:04	14°♄46'39	18.03512 AU	min. Earth dist.	3758 Aug 09 11:48	19°♄11'17	18.54030 AU
direct	3750 Sep 20 09:19	12°♄44'22		opposition	3758 Aug 10 02:51	19°♄09'46	0°-41'-29
				direct	3758 Oct 26 01:27	17°♄10'33	
conjunction	3751 Jan 07 18:49	16°♄59'11	0°-17'-59				
minimum elong	3751 Jan 07 18:49	16°♄59'11	0°18'01	conjunction	3759 Feb 10 09:33	21°♄14'00	0°-38'-22
max. Earth dist.	3751 Jan 08 00:12	17°♄00'00	20.06852 AU	minimum elong	3759 Feb 10 09:33	21°♄14'00	0°38'23
retrograde	3751 Apr 25 03:53	21°♄10'22		max. Earth dist.	3759 Feb 11 02:02	21°♄16'26	20.56979 AU
opposition	3751 Jul 10 01:23	19°♄10'41	0°-21'-42	retrograde	3759 May 29 14:14	25°♄18'57	
min. Earth dist.	3751 Jul 09 19:12	19°♄11'19	18.10143 AU	opposition	3759 Aug 14 17:17	23°♄19'52	0°-43'-27
direct	3751 Sep 25 05:33	17°♄09'14		min. Earth dist.	3759 Aug 13 23:56	23°♄21'37	18.59907 AU
				direct	3759 Oct 30 15:24	21°♄21'00	
conjunction	3752 Jan 12 08:26	21°♄22'34	0°-21'-8				
minimum elong	3752 Jan 12 08:26	21°♄22'34	0°21'09	conjunction	3760 Feb 14 17:17	25°♄23'14	0°-40'-2
max. Earth dist.	3752 Jan 12 14:41	21°♄23'31	20.13447 AU	minimum elong	3760 Feb 14 17:17	25°♄23'14	0°40'03
retrograde	3752 Apr 28 19:15	25°♄32'54		max. Earth dist.	3760 Feb 15 11:12	25°♄25'52	20.62762 AU
opposition	3752 Jul 13 20:57	23°♄33'21	0°-25'-6	retrograde	3760 Jun 01 23:32	29°♄27'37	
min. Earth dist.	3752 Jul 13 14:07	23°♄34'03	18.16708 AU	opposition	3760 Aug 18 07:19	27°♄28'38	0°-45'-10
direct	3752 Sep 28 23:56	21°♄32'16		min. Earth dist.	3760 Aug 17 13:55	27°♄30'22	18.65601 AU
				direct	3760 Nov 03 02:29	25°♄30'05	
conjunction	3753 Jan 15 21:21	25°♄44'07	0°-24'-8				
minimum elong	3753 Jan 15 21:21	25°♄44'07	0°24'08	conjunction	3761 Feb 18 00:39	29°♄31'10	0°-41'-30
max. Earth dist.	3753 Jan 16 05:21	25°♄45'19	20.19964 AU	minimum elong	3761 Feb 18 00:38	29°♄31'10	0°41'31
retrograde	3753 May 03 11:06	29°♄53'36		max. Earth dist.	3761 Feb 18 19:25	29°♄33'56	20.68351 AU
opposition	3753 Jul 18 15:48	27°♄54'09	0°-28'-21		3761 Feb 26 04:31	0°♄	
min. Earth dist.	3753 Jul 18 06:47	27°♄55'04	18.23164 AU	retrograde	3761 Jun 06 11:26	3°♄35'01	
direct	3753 Oct 03 19:05	25°♄53'23		opposition	3761 Aug 22 20:37	1°♄36'08	0°-46'-38
	3754 Jan 19 08:23	0°♄		min. Earth dist.	3761 Aug 22 01:13	1°♄38'05	18.71066 AU
					3761 Oct 08 09:13	30°♄	
conjunction	3754 Jan 20 09:13	0°♄03'45	0°-26'-58	direct	3761 Nov 07 14:30	29°♄37'55	
minimum elong	3754 Jan 20 09:13	0°♄03'45	0°26'59		3761 Dec 07 01:03	0°♄	
max. Earth dist.	3754 Jan 20 18:21	0°♄05'08	20.26360 AU				
retrograde	3754 May 08 00:18	4°♄12'25		conjunction	3762 Feb 22 07:34	3°♄37'55	0°-42'-44
opposition	3754 Jul 23 10:00	2°♄13'00	0°-31'-24	minimum elong	3762 Feb 22 07:33	3°♄37'55	0°42'44
min. Earth dist.	3754 Jul 23 00:32	2°♄13'58	18.29513 AU	max. Earth dist.	3762 Feb 23 03:33	3°♄40'51	20.73664 AU
direct	3754 Oct 08 12:13	0°♄12'34		retrograde	3762 Jun 10 20:32	7°♄41'17	
				opposition	3762 Aug 27 09:31	5°♄42'29	0°-47'-52
conjunction	3755 Jan 24 20:25	4°♄21'27	0°-29'-38	min. Earth dist.	3762 Aug 26 14:26	5°♄44'24	18.76230 AU
minimum elong	3755 Jan 24 20:25	4°♄21'27	0°29'39	direct	3762 Nov 12 00:22	3°♄44'35	
max. Earth dist.	3755 Jan 25 07:11	4°♄23'04	20.32656 AU				
retrograde	3755 May 12 14:58	8°♄29'16		conjunction	3763 Feb 26 14:12	7°♄43'34	0°-43'-44
opposition	3755 Jul 28 03:06	6°♄29'55	0°-34'-15	minimum elong	3763 Feb 26 14:12	7°♄43'34	0°43'46
min. Earth dist.	3755 Jul 27 15:22	6°♄31'06	18.35756 AU	max. Earth dist.	3763 Feb 27 10:31	7°♄46'33	20.78656 AU
direct	3755 Oct 13 05:49	4°♄29'45		retrograde	3763 Jun 15 07:34	11°♄46'30	
				opposition	3763 Aug 31 21:35	9°♄47'46	0°-48'-51
conjunction	3756 Jan 29 06:45	8°♄37'13	0°-32'-7	min. Earth dist.	3763 Aug 31 00:58	9°♄49'50	18.81034 AU
minimum elong	3756 Jan 29 06:44	8°♄37'13	0°32'09	direct	3763 Nov 16 11:07	7°♄50'09	
max. Earth dist.	3756 Jan 29 18:55	8°♄39'02	20.38849 AU				
retrograde	3756 May 16 02:08	12°♄44'15		conjunction	3764 Mar 01 20:34	11°♄48'11	0°-44'-32
opposition	3756 Jul 31 19:49	10°♄44'56	0°-36'-53	minimum elong	3764 Mar 01 20:34	11°♄48'11	0°44'32
min. Earth dist.	3756 Jul 31 07:36	10°♄46'10	18.41924 AU	max. Earth dist.	3764 Mar 02 17:44	11°♄51'17	20.83248 AU
direct	3756 Oct 16 20:52	8°♄45'05		retrograde	3764 Jun 18 16:18	15°♄50'43	
				opposition	3764 Sep 04 09:29	13°♄52'03	0°-49'-36
conjunction	3757 Feb 01 16:15	12°♄51'08	0°-34'-24	min. Earth dist.	3764 Sep 03 13:27	13°♄54'03	18.85419 AU

direct	3764 Nov 19 19:53	11° <del>✕</del> 54'41		direct	3772 Dec 22 06:31	13° <del>Υ</del> 58'52	
conjunction	3765 Mar 06 02:33	15° <del>✕</del> 51'49	0°-45'-6	conjunction	3773 Apr 06 19:58	17° <del>Υ</del> 51'39	0°-41'-33
minimum elong	3765 Mar 06 02:33	15° <del>✕</del> 51'49	0°45'06	minimum elong	3773 Apr 06 19:58	17° <del>Υ</del> 51'39	0°41'34
max. Earth dist.	3765 Mar 06 23:41	15° <del>✕</del> 54'54	20.87408 AU	max. Earth dist.	3773 Apr 07 18:18	17° <del>Υ</del> 54'51	21.04877 AU
retrograde	3765 Jun 23 02:46	19° <del>✕</del> 54'01		retrograde	3773 Jul 25 21:08	21° <del>Υ</del> 52'45	
opposition	3765 Sep 08 20:43	17° <del>✕</del> 55'20	0°-50'-5	opposition	3773 Oct 11 21:11	19° <del>Υ</del> 53'37	0°-45'-8
min. Earth dist.	3765 Sep 07 23:27	17° <del>✕</del> 57'28	18.89340 AU	min. Earth dist.	3773 Oct 10 23:39	19° <del>Υ</del> 55'47	19.05219 AU
direct	3765 Nov 24 05:49	15° <del>✕</del> 58'10		direct	3773 Dec 26 11:43	17° <del>Υ</del> 57'12	
conjunction	3766 Mar 10 08:27	19° <del>✕</del> 54'30	0°-45'-26	conjunction	3774 Apr 11 01:13	21° <del>Υ</del> 49'51	0°-40'-9
minimum elong	3766 Mar 10 08:27	19° <del>✕</del> 54'30	0°45'26	minimum elong	3774 Apr 11 01:14	21° <del>Υ</del> 49'51	0°40'10
max. Earth dist.	3766 Mar 11 06:09	19° <del>✕</del> 57'39	20.91073 AU	max. Earth dist.	3774 Apr 11 23:51	21° <del>Υ</del> 53'06	21.05380 AU
retrograde	3766 Jun 27 10:35	23° <del>✕</del> 56'22		retrograde	3774 Jul 30 04:16	25° <del>Υ</del> 51'05	
min. Earth dist.	3766 Sep 12 10:58	21° <del>✕</del> 59'42	18.92762 AU	min. Earth dist.	3774 Oct 15 08:13	23° <del>Υ</del> 54'00	19.05523 AU
opposition	3766 Sep 13 07:22	21° <del>✕</del> 57'40	0°-50'-19	opposition	3774 Oct 16 04:42	23° <del>Υ</del> 51'56	0°-43'-30
direct	3766 Nov 28 13:26	20° <del>✕</del> 00'40		direct	3774 Dec 30 17:18	21° <del>Υ</del> 55'35	
conjunction	3767 Mar 14 14:02	23° <del>✕</del> 56'14	0°-45'-32	conjunction	3775 Apr 15 06:37	25° <del>Υ</del> 48'12	0°-38'-35
minimum elong	3767 Mar 14 14:02	23° <del>✕</del> 56'14	0°45'33	minimum elong	3775 Apr 15 06:37	25° <del>Υ</del> 48'12	0°38'36
max. Earth dist.	3767 Mar 15 11:24	23° <del>✕</del> 59'19	20.94258 AU	max. Earth dist.	3775 Apr 16 04:17	25° <del>Υ</del> 51'18	21.05493 AU
retrograde	3767 Jul 01 20:19	27° <del>✕</del> 57'48		retrograde	3775 Aug 03 14:25	29° <del>Υ</del> 49'38	
opposition	3767 Sep 17 17:28	25° <del>✕</del> 59'03	0°-50'-18	opposition	3775 Oct 20 12:09	27° <del>Υ</del> 50'27	0°-41'-39
min. Earth dist.	3767 Sep 16 20:04	26° <del>✕</del> 01'11	18.95706 AU	min. Earth dist.	3775 Oct 19 15:33	27° <del>Υ</del> 52'31	19.05420 AU
direct	3767 Dec 02 22:26	24° <del>✕</del> 02'09		direct	3776 Jan 03 22:27	25° <del>Υ</del> 54'08	
conjunction	3768 Mar 17 19:13	27° <del>✕</del> 57'02	0°-45'-25	conjunction	3776 Apr 18 12:15	29° <del>Υ</del> 46'48	0°-36'-49
minimum elong	3768 Mar 17 19:13	27° <del>✕</del> 57'02	0°45'27	minimum elong	3776 Apr 18 12:16	29° <del>Υ</del> 46'48	0°36'49
max. Earth dist.	3768 Mar 18 17:20	28° <del>✕</del> 00'14	20.96966 AU	max. Earth dist.	3776 Apr 19 10:00	29° <del>Υ</del> 49'55	21.05160 AU
	3768 Apr 23 23:12	0° <del>Υ</del>			3776 Apr 22 08:28	0° <del>♄</del>	
retrograde	3768 Jul 05 03:22	1° <del>Υ</del> 58'23		retrograde	3776 Aug 06 21:44	3° <del>♄</del> 48'30	
min. Earth dist.	3768 Sep 20 06:33	0° <del>Υ</del> 01'37	18.98203 AU	opposition	3776 Oct 23 19:38	1° <del>♄</del> 49'17	0°-39'-36
	3768 Sep 20 22:43	30° <del>♁</del>		min. Earth dist.	3776 Oct 23 00:20	1° <del>♄</del> 51'14	19.04850 AU
opposition	3768 Sep 21 03:14	29° <del>✕</del> 59'33	0°-50'-2		3776 Dec 21 12:31	30° <del>♁</del>	
direct	3768 Dec 06 05:02	28° <del>✕</del> 02'45		direct	3777 Jan 07 03:41	29° <del>Υ</del> 52'59	
	3769 Feb 14 16:55	0° <del>Υ</del>			3777 Jan 23 16:39	0° <del>♄</del>	
conjunction	3769 Mar 22 00:17	1° <del>Υ</del> 57'00	0°-45'-4	conjunction	3777 Apr 22 18:24	3° <del>♄</del> 45'47	0°-34'-52
minimum elong	3769 Mar 22 00:17	1° <del>Υ</del> 57'00	0°45'05	minimum elong	3777 Apr 22 18:24	3° <del>♄</del> 45'47	0°34'54
max. Earth dist.	3769 Mar 22 22:13	2° <del>Υ</del> 00'10	20.99271 AU	max. Earth dist.	3777 Apr 23 14:43	3° <del>♄</del> 48'41	21.04355 AU
retrograde	3769 Jul 09 12:33	5° <del>Υ</del> 58'10		retrograde	3777 Aug 11 08:15	7° <del>♄</del> 47'47	
opposition	3769 Sep 25 12:18	3° <del>Υ</del> 59'15	0°-49'-31	min. Earth dist.	3777 Oct 27 07:59	5° <del>♄</del> 50'24	19.03785 AU
min. Earth dist.	3769 Sep 24 14:40	4° <del>Υ</del> 01'25	19.00319 AU	opposition	3777 Oct 28 02:52	5° <del>♄</del> 48'29	0°-37'-21
direct	3769 Dec 10 12:49	2° <del>Υ</del> 02'32		direct	3778 Jan 11 09:34	3° <del>♄</del> 52'09	
conjunction	3770 Mar 26 05:16	5° <del>Υ</del> 56'17	0°-44'-30	conjunction	3778 Apr 27 01:02	7° <del>♄</del> 45'11	0°-32'-45
minimum elong	3770 Mar 26 05:16	5° <del>Υ</del> 56'17	0°44'32	minimum elong	3778 Apr 27 01:02	7° <del>♄</del> 45'11	0°32'46
max. Earth dist.	3770 Mar 27 03:56	5° <del>Υ</del> 59'33	21.01191 AU	max. Earth dist.	3778 Apr 27 20:54	7° <del>♄</del> 48'01	21.03012 AU
retrograde	3770 Jul 13 19:36	9° <del>Υ</del> 57'20		retrograde	3778 Aug 15 15:43	11° <del>♄</del> 47'30	
opposition	3770 Sep 29 21:03	7° <del>Υ</del> 58'21	0°-48'-46	opposition	3778 Nov 01 10:13	9° <del>♄</del> 48'07	0°-34'-55
min. Earth dist.	3770 Sep 29 00:08	8° <del>Υ</del> 00'26	19.02063 AU	min. Earth dist.	3778 Oct 31 16:55	9° <del>♄</del> 49'52	19.02162 AU
direct	3770 Dec 14 18:36	6° <del>Υ</del> 01'42		direct	3779 Jan 15 14:28	7° <del>♄</del> 51'42	
conjunction	3771 Mar 30 10:07	9° <del>Υ</del> 55'02	0°-43'-43	conjunction	3779 May 01 07:52	11° <del>♄</del> 45'00	0°-30'-29
minimum elong	3771 Mar 30 10:07	9° <del>Υ</del> 55'02	0°43'44	minimum elong	3779 May 01 07:52	11° <del>♄</del> 45'00	0°30'30
max. Earth dist.	3771 Mar 31 08:25	9° <del>Υ</del> 58'14	21.02766 AU	max. Earth dist.	3779 May 02 01:56	11° <del>♄</del> 47'35	21.01125 AU
retrograde	3771 Jul 18 04:27	13° <del>Υ</del> 56'02			3779 Jul 06 04:02	15° <del>♄</del>	
min. Earth dist.	3771 Oct 03 07:32	11° <del>Υ</del> 59'10	19.03466 AU	retrograde	3779 Aug 20 01:59	15° <del>♄</del> 47'41	
opposition	3771 Oct 04 05:17	11° <del>Υ</del> 56'59	0°-47'-47		3779 Oct 04 22:33	15° <del>♁</del>	
direct	3771 Dec 19 00:56	10° <del>Υ</del> 00'25		opposition	3779 Nov 05 17:31	13° <del>♄</del> 48'10	0°-32'-19
conjunction	3772 Apr 02 15:04	13° <del>Υ</del> 53'26	0°-42'-44	min. Earth dist.	3779 Nov 05 00:52	13° <del>♄</del> 49'51	18.99996 AU
minimum elong	3772 Apr 02 15:04	13° <del>Υ</del> 53'26	0°42'45	direct	3780 Jan 19 21:11	11° <del>♄</del> 51'37	
max. Earth dist.	3772 Apr 03 13:58	13° <del>Υ</del> 56'43	21.03990 AU		3780 Apr 21 09:09	15° <del>♄</del>	
retrograde	3772 Jul 21 11:45	17° <del>Υ</del> 54'27		conjunction	3780 May 04 15:13	15° <del>♄</del> 45'16	0°-28'-3
opposition	3772 Oct 07 13:25	15° <del>Υ</del> 55'21	0°-46'-34	minimum elong	3780 May 04 15:13	15° <del>♄</del> 45'16	0°28'04
min. Earth dist.	3772 Oct 06 16:25	15° <del>Υ</del> 57'28	19.04519 AU	max. Earth dist.	3780 May 05 08:48	15° <del>♄</del> 47'47	20.98691 AU

retrograde	3780 Aug 23 09:42	19°♄48'20		min. Earth dist.	3787 Dec 07 22:50	16°♄13'48	18.68572 AU
min. Earth dist.	3780 Nov 08 09:45	17°♄50'11	18.97305 AU	direct	3788 Feb 21 00:42	14°♄14'39	
opposition	3780 Nov 09 00:49	17°♄48'40	0°-29'-33				
direct	3781 Jan 23 02:25	15°♄51'55		conjunction	3788 Jun 06 20:10	18°♄14'16	0°-4'-29
				minimum elong	3788 Jun 06 20:11	18°♄14'16	0°04'30
conjunction	3781 May 08 22:52	19°♄45'59	0°-25'-28	behind sun begin	3788 Jun 06 13:36	18°♄13'20	
minimum elong	3781 May 08 22:52	19°♄45'59	0°25'29	behind sun end	3788 Jun 07 02:46	18°♄15'12	
max. Earth dist.	3781 May 09 14:37	19°♄48'14	20.95780 AU	max. Earth dist.	3788 Jun 07 04:15	18°♄15'25	20.66052 AU
retrograde	3781 Aug 27 19:49	23°♄49'29		retrograde	3788 Sep 25 22:09	22°♄22'11	
opposition	3781 Nov 13 08:04	21°♄49'37	0°-26'-38	opposition	3788 Dec 11 15:08	20°♄21'23	0°-3'-3
min. Earth dist.	3781 Nov 12 17:46	21°♄51'05	18.94165 AU	min. Earth dist.	3788 Dec 11 08:56	20°♄22'02	18.63454 AU
direct	3782 Jan 27 09:06	19°♄52'40		direct	3789 Feb 24 08:38	18°♄22'48	
conjunction	3782 May 13 07:06	23°♄47'15	0°-22'-45	conjunction	3789 Jun 11 09:02	22°♄23'33	0°-1'-11
minimum elong	3782 May 13 07:05	23°♄47'15	0°22'47	minimum elong	3789 Jun 11 09:02	22°♄23'33	0°01'13
max. Earth dist.	3782 May 13 22:25	23°♄49'27	20.92424 AU	behind sun begin	3789 Jun 11 02:19	22°♄22'36	
retrograde	3782 Sep 01 04:20	27°♄51'12		behind sun end	3789 Jun 11 15:45	22°♄24'29	
opposition	3782 Nov 17 15:16	25°♄51'10	0°-23'-34	max. Earth dist.	3789 Jun 11 14:28	22°♄24'18	20.60826 AU
min. Earth dist.	3782 Nov 17 02:24	25°♄52'29	18.90614 AU	retrograde	3789 Sep 30 11:42	26°♄32'17	
direct	3783 Jan 31 14:53	23°♄53'59		asc. node	3789 Oct 18 15:33	26°♄24'05	
				opposition	3789 Dec 16 00:23	24°♄31'25	0°00'35
conjunction	3783 May 17 15:39	27°♄49'10	0°-19'-56	min. Earth dist.	3789 Dec 15 19:47	24°♄31'53	18.58100 AU
minimum elong	3783 May 17 15:39	27°♄49'10	0°19'56	direct	3790 Feb 28 17:04	22°♄32'34	
max. Earth dist.	3783 May 18 05:07	27°♄51'06	20.88713 AU				
	3783 Jun 26 16:34	0°♄		conjunction	3790 Jun 15 22:51	26°♄34'33	0°02'13
retrograde	3783 Sep 05 14:32	1°♄53'40		minimum elong	3790 Jun 15 22:52	26°♄34'33	0°02'14
	3783 Nov 19 06:32	30°♄		behind sun begin	3790 Jun 15 16:08	26°♄33'36	
opposition	3783 Nov 21 22:40	29°♄53'26	0°-20'-23	behind sun end	3790 Jun 16 05:35	26°♄35'30	
min. Earth dist.	3783 Nov 21 10:32	29°♄54'41	18.86740 AU	max. Earth dist.	3790 Jun 16 03:34	26°♄35'11	20.55328 AU
direct	3784 Feb 04 21:12	27°♄56'00			3790 Aug 23 16:34	0°♄	
	3784 Apr 17 07:27	0°♄		retrograde	3790 Oct 05 00:55	0°♄44'07	
					3790 Nov 17 03:10	30°♄	
conjunction	3784 May 21 00:47	1°♄51'54	0°-17'00	opposition	3790 Dec 20 10:03	28°♄43'10	0°04'15
minimum elong	3784 May 21 00:47	1°♄51'54	0°17'01	min. Earth dist.	3790 Dec 20 06:58	28°♄43'30	18.52458 AU
max. Earth dist.	3784 May 21 13:56	1°♄53'47	20.84681 AU	direct	3791 Mar 05 02:18	26°♄44'03	
retrograde	3784 Sep 09 00:25	5°♄56'58			3791 Jun 06 23:50	0°♄	
opposition	3784 Nov 25 06:16	3°♄56'35	0°-17'-5				
min. Earth dist.	3784 Nov 24 19:24	3°♄57'42	18.82561 AU	conjunction	3791 Jun 20 13:28	0°♄47'17	0°05'32
direct	3785 Feb 08 03:41	1°♄58'55		minimum elong	3791 Jun 20 13:28	0°♄47'17	0°05'32
				behind sun begin	3791 Jun 20 07:00	0°♄46'22	
conjunction	3785 May 25 10:34	5°♄55'36	0°-13'-58	behind sun end	3791 Jun 20 19:56	0°♄48'12	
minimum elong	3785 May 25 10:34	5°♄55'36	0°13'59	max. Earth dist.	3791 Jun 20 15:08	0°♄47'29	20.49551 AU
behind sun begin	3785 May 25 07:16	5°♄55'08		retrograde	3791 Oct 09 15:24	4°♄57'43	
behind sun end	3785 May 25 13:52	5°♄56'04		opposition	3791 Dec 24 20:21	2°♄56'39	0°07'56
max. Earth dist.	3785 May 25 21:40	5°♄57'11	20.80380 AU	min. Earth dist.	3791 Dec 24 19:11	2°♄56'46	18.46540 AU
retrograde	3785 Sep 13 11:13	10°♄01'19		direct	3792 Mar 08 11:51	0°♄57'12	
opposition	3785 Nov 29 13:54	8°♄00'47	0°-13'-41				
min. Earth dist.	3785 Nov 29 03:59	8°♄01'48	18.78133 AU	conjunction	3792 Jun 24 05:04	5°♄01'44	0°08'50
direct	3786 Feb 12 10:11	6°♄02'52		minimum elong	3792 Jun 24 05:04	5°♄01'44	0°08'50
				behind sun begin	3792 Jun 23 23:17	5°♄00'55	
conjunction	3786 May 29 21:07	10°♄00'27	0°-10'-52	behind sun end	3792 Jun 24 10:50	5°♄02'33	
minimum elong	3786 May 29 21:08	10°♄00'27	0°10'54	max. Earth dist.	3792 Jun 24 05:49	5°♄01'50	20.43483 AU
behind sun begin	3786 May 29 16:05	9°♄59'44		retrograde	3792 Oct 13 06:27	9°♄12'59	
behind sun end	3786 May 30 02:10	10°♄01'09		opposition	3792 Dec 28 07:09	7°♄11'48	0°11'36
max. Earth dist.	3786 May 30 07:49	10°♄01'58	20.75825 AU	min. Earth dist.	3792 Dec 28 07:25	7°♄11'46	18.40325 AU
retrograde	3786 Sep 17 22:10	14°♄06'50		direct	3793 Mar 12 22:50	5°♄12'00	
opposition	3786 Dec 03 21:59	12°♄06'12	0°-10'-12				
min. Earth dist.	3786 Dec 03 13:18	12°♄07'06	18.73457 AU	conjunction	3793 Jun 28 21:26	9°♄17'51	0°12'07
direct	3787 Feb 16 17:21	10°♄08'05		minimum elong	3793 Jun 28 21:26	9°♄17'51	0°12'07
				behind sun begin	3793 Jun 28 16:57	9°♄17'12	
conjunction	3787 Jun 03 08:08	14°♄06'37	0°-7'-42	behind sun end	3793 Jun 29 01:55	9°♄18'29	
minimum elong	3787 Jun 03 08:07	14°♄06'37	0°07'44	max. Earth dist.	3793 Jun 28 18:58	9°♄17'30	20.37150 AU
behind sun begin	3787 Jun 03 02:05	14°♄05'46		retrograde	3793 Oct 17 21:35	13°♄29'56	
behind sun end	3787 Jun 03 14:09	14°♄07'28		opposition	3794 Jan 01 18:21	11°♄28'35	0°15'13
max. Earth dist.	3787 Jun 03 16:37	14°♄07'49	20.71051 AU	min. Earth dist.	3794 Jan 01 20:45	11°♄28'20	18.33885 AU
retrograde	3787 Sep 22 10:13	18°♄13'46		direct	3794 Mar 17 09:27	9°♄28'22	
opposition	3787 Dec 08 06:25	16°♄13'01	0°-6'-39				

conjunction	3794 Jul 03 14:44	13° $\mathfrak{E}$ 35'35	0°15'21	min. Earth dist.	3802 Feb 06 22:16	16° $\mathfrak{Q}$ 41'03	17.82201 AU
minimum elong	3794 Jul 03 14:44	13° $\mathfrak{E}$ 35'35	0°15'20		3802 Mar 25 00:58	15° $\mathfrak{R}$ $\mathfrak{Q}$	
behind sun begin	3794 Jul 03 13:06	13° $\mathfrak{E}$ 35'21		direct	3802 Apr 22 05:54	14° $\mathfrak{Q}$ 39'08	
behind sun end	3794 Jul 03 16:23	13° $\mathfrak{E}$ 35'49			3802 May 20 07:03	15° $\mathfrak{Q}$	
max. Earth dist.	3794 Jul 03 11:30	13° $\mathfrak{E}$ 35'07	20.30613 AU				
retrograde	3794 Oct 22 14:14	17° $\mathfrak{E}$ 48'30		conjunction	3802 Aug 10 12:52	18° $\mathfrak{Q}$ 58'01	0°37'12
opposition	3795 Jan 06 06:07	15° $\mathfrak{E}$ 46'58	0°18'47	minimum elong	3802 Aug 10 12:52	18° $\mathfrak{Q}$ 58'01	0°37'12
min. Earth dist.	3795 Jan 06 09:40	15° $\mathfrak{E}$ 46'35	18.27269 AU	max. Earth dist.	3802 Aug 09 21:06	18° $\mathfrak{Q}$ 55'37	19.79319 AU
direct	3795 Mar 21 22:00	13° $\mathfrak{E}$ 46'21		retrograde	3802 Nov 28 17:27	23° $\mathfrak{Q}$ 17'23	
				opposition	3803 Feb 11 02:04	21° $\mathfrak{Q}$ 14'54	0°42'29
conjunction	3795 Jul 08 08:29	17° $\mathfrak{E}$ 54'56	0°18'31	min. Earth dist.	3803 Feb 11 15:20	21° $\mathfrak{Q}$ 13'27	17.76500 AU
minimum elong	3795 Jul 08 08:29	17° $\mathfrak{E}$ 54'56	0°18'32	direct	3803 Apr 27 00:56	19° $\mathfrak{Q}$ 11'17	
max. Earth dist.	3795 Jul 08 02:18	17° $\mathfrak{E}$ 54'02	20.23949 AU				
retrograde	3795 Oct 27 06:06	22° $\mathfrak{E}$ 08'41		conjunction	3803 Aug 15 13:09	23° $\mathfrak{Q}$ 31'37	0°39'09
opposition	3796 Jan 10 18:29	20° $\mathfrak{E}$ 06'57	0°22'16	minimum elong	3803 Aug 15 13:09	23° $\mathfrak{Q}$ 31'37	0°39'09
min. Earth dist.	3796 Jan 11 00:05	20° $\mathfrak{E}$ 06'21	18.20577 AU	max. Earth dist.	3803 Aug 14 19:35	23° $\mathfrak{Q}$ 28'57	19.73716 AU
direct	3796 Mar 25 10:03	18° $\mathfrak{E}$ 05'53		retrograde	3803 Dec 03 13:44	27° $\mathfrak{Q}$ 51'45	
				opposition	3804 Feb 15 19:54	25° $\mathfrak{Q}$ 49'15	0°44'32
conjunction	3796 Jul 12 03:24	22° $\mathfrak{E}$ 15'54	0°21'36	min. Earth dist.	3804 Feb 16 11:25	25° $\mathfrak{Q}$ 47'34	17.71008 AU
minimum elong	3796 Jul 12 03:23	22° $\mathfrak{E}$ 15'54	0°21'36	direct	3804 Apr 30 19:29	23° $\mathfrak{Q}$ 45'21	
max. Earth dist.	3796 Jul 11 20:39	22° $\mathfrak{E}$ 14'54	20.17233 AU				
retrograde	3796 Oct 30 23:51	26° $\mathfrak{E}$ 30'27		conjunction	3804 Aug 19 14:24	28° $\mathfrak{Q}$ 07'07	0°40'51
opposition	3797 Jan 14 07:12	24° $\mathfrak{E}$ 28'33	0°25'39	minimum elong	3804 Aug 19 14:24	28° $\mathfrak{Q}$ 07'07	0°40'51
min. Earth dist.	3797 Jan 14 13:38	24° $\mathfrak{E}$ 27'51	18.13859 AU	max. Earth dist.	3804 Aug 18 19:36	28° $\mathfrak{Q}$ 04'15	19.68322 AU
direct	3797 Mar 29 23:46	22° $\mathfrak{E}$ 27'04			3804 Sep 20 08:39	0° $\mathfrak{R}$	
				retrograde	3804 Dec 07 12:10	2° $\mathfrak{R}$ 27'56	
conjunction	3797 Jul 16 22:57	26° $\mathfrak{E}$ 38'30	0°24'35	opposition	3805 Feb 19 14:14	0° $\mathfrak{R}$ 25'24	0°46'19
minimum elong	3797 Jul 16 22:57	26° $\mathfrak{E}$ 38'30	0°24'35	min. Earth dist.	3805 Feb 20 05:59	0° $\mathfrak{R}$ 23'42	17.65712 AU
max. Earth dist.	3797 Jul 16 13:24	26° $\mathfrak{E}$ 37'05	20.10532 AU		3805 Mar 01 09:34	30° $\mathfrak{R}$ $\mathfrak{Q}$	
	3797 Sep 19 12:42	0° $\mathfrak{Q}$		direct	3805 May 05 16:49	28° $\mathfrak{Q}$ 21'13	
retrograde	3797 Nov 04 16:45	0° $\mathfrak{Q}$ 53'53			3805 Jul 07 13:29	0° $\mathfrak{R}$	
	3797 Dec 21 15:20	30° $\mathfrak{R}$ $\mathfrak{E}$					
opposition	3798 Jan 18 20:43	28° $\mathfrak{E}$ 51'48	0°28'54	conjunction	3805 Aug 24 16:19	2° $\mathfrak{R}$ 44'22	0°42'19
min. Earth dist.	3798 Jan 19 05:10	28° $\mathfrak{E}$ 50'53	18.07202 AU	minimum elong	3805 Aug 24 16:19	2° $\mathfrak{R}$ 44'22	0°42'19
direct	3798 Apr 03 13:34	26° $\mathfrak{E}$ 49'52		max. Earth dist.	3805 Aug 23 20:06	2° $\mathfrak{R}$ 41'16	19.63114 AU
	3798 Jul 04 02:51	0° $\mathfrak{Q}$		retrograde	3805 Dec 12 09:17	7° $\mathfrak{R}$ 05'47	
				opposition	3806 Feb 24 09:36	5° $\mathfrak{R}$ 03'15	0°47'49
conjunction	3798 Jul 21 19:18	1° $\mathfrak{Q}$ 02'47	0°27'26	min. Earth dist.	3806 Feb 25 03:26	5° $\mathfrak{R}$ 01'18	17.60623 AU
minimum elong	3798 Jul 21 19:18	1° $\mathfrak{Q}$ 02'47	0°27'26	direct	3806 May 10 13:08	2° $\mathfrak{R}$ 58'46	
max. Earth dist.	3798 Jul 21 09:20	1° $\mathfrak{Q}$ 01'18	20.03917 AU				
retrograde	3798 Nov 09 11:14	5° $\mathfrak{Q}$ 18'58		conjunction	3806 Aug 29 18:32	7° $\mathfrak{R}$ 23'11	0°43'31
opposition	3799 Jan 23 10:45	3° $\mathfrak{Q}$ 16'44	0°32'00	minimum elong	3806 Aug 29 18:32	7° $\mathfrak{R}$ 23'11	0°43'30
min. Earth dist.	3799 Jan 23 19:36	3° $\mathfrak{Q}$ 15'47	18.00652 AU	max. Earth dist.	3806 Aug 28 20:54	7° $\mathfrak{R}$ 19'52	19.58144 AU
direct	3799 Apr 08 04:47	1° $\mathfrak{Q}$ 14'26		retrograde	3806 Dec 17 08:45	11° $\mathfrak{R}$ 45'11	
				opposition	3807 Mar 01 05:27	9° $\mathfrak{R}$ 42'35	0°49'00
conjunction	3799 Jul 26 16:23	5° $\mathfrak{Q}$ 28'48	0°30'09	min. Earth dist.	3807 Mar 01 23:18	9° $\mathfrak{R}$ 40'38	17.55782 AU
minimum elong	3799 Jul 26 16:23	5° $\mathfrak{Q}$ 28'48	0°30'08	direct	3807 May 15 12:34	7° $\mathfrak{R}$ 37'49	
max. Earth dist.	3799 Jul 26 03:57	5° $\mathfrak{Q}$ 26'57	19.97447 AU				
retrograde	3799 Nov 14 05:11	9° $\mathfrak{Q}$ 45'48		conjunction	3807 Sep 03 21:26	12° $\mathfrak{R}$ 03'26	0°44'25
opposition	3800 Jan 28 01:32	7° $\mathfrak{Q}$ 43'27	0°34'55	minimum elong	3807 Sep 03 21:26	12° $\mathfrak{R}$ 03'26	0°44'25
min. Earth dist.	3800 Jan 28 12:20	7° $\mathfrak{Q}$ 42'17	17.94288 AU	max. Earth dist.	3807 Sep 02 23:12	12° $\mathfrak{R}$ 00'00	19.53435 AU
direct	3800 Apr 12 20:02	5° $\mathfrak{Q}$ 40'45		retrograde	3807 Dec 22 06:40	16° $\mathfrak{R}$ 25'54	
				opposition	3808 Mar 05 01:57	14° $\mathfrak{R}$ 23'16	0°49'52
conjunction	3800 Jul 31 14:26	9° $\mathfrak{Q}$ 56'38	0°32'41	min. Earth dist.	3808 Mar 05 21:34	14° $\mathfrak{R}$ 21'07	17.51236 AU
minimum elong	3800 Jul 31 14:26	9° $\mathfrak{Q}$ 56'38	0°32'41	direct	3808 May 19 10:18	12° $\mathfrak{R}$ 18'11	
max. Earth dist.	3800 Jul 31 01:31	9° $\mathfrak{Q}$ 54'42	19.91183 AU	max. Earth dist.	3808 Sep 07 00:52	16° $\mathfrak{R}$ 41'14	19.49065 AU
retrograde	3800 Nov 19 01:04	14° $\mathfrak{Q}$ 14'26					
opposition	3801 Feb 01 16:57	12° $\mathfrak{Q}$ 12'00	0°37'40	conjunction	3808 Sep 08 00:38	16° $\mathfrak{R}$ 44'55	0°45'02
min. Earth dist.	3801 Feb 02 03:59	12° $\mathfrak{Q}$ 10'49	17.88128 AU	minimum elong	3808 Sep 08 00:38	16° $\mathfrak{R}$ 44'55	0°45'02
direct	3801 Apr 17 13:10	10° $\mathfrak{Q}$ 08'59		retrograde	3808 Dec 26 06:54	21° $\mathfrak{R}$ 07'47	
				opposition	3809 Mar 09 23:00	19° $\mathfrak{R}$ 05'06	0°50'24
conjunction	3801 Aug 05 13:13	14° $\mathfrak{Q}$ 26'21	0°35'02	min. Earth dist.	3809 Mar 10 18:31	19° $\mathfrak{R}$ 02'58	17.47051 AU
minimum elong	3801 Aug 05 13:13	14° $\mathfrak{Q}$ 26'21	0°35'02	direct	3809 May 24 10:36	16° $\mathfrak{R}$ 59'44	
max. Earth dist.	3801 Aug 04 22:08	14° $\mathfrak{Q}$ 24'04	19.85130 AU	max. Earth dist.	3809 Sep 12 04:40	21° $\mathfrak{R}$ 23'50	19.45070 AU
	3801 Aug 14 20:36	15° $\mathfrak{Q}$					
retrograde	3801 Nov 23 20:05	18° $\mathfrak{Q}$ 44'56		conjunction	3809 Sep 13 04:08	21° $\mathfrak{R}$ 27'28	0°45'21
opposition	3802 Feb 06 09:11	16° $\mathfrak{Q}$ 42'28	0°40'11	minimum elong	3809 Sep 13 04:08	21° $\mathfrak{R}$ 27'28	0°45'21

retrograde	3809 Dec 31 05:54	25° $\overline{\text{M}}$ 50'40			3817 Oct 30 06:16	0° $\overline{\text{M}}$	
opposition	3810 Mar 14 20:44	23° $\overline{\text{M}}$ 47'56	0°50'35	retrograde	3818 Feb 07 04:32	3° $\overline{\text{M}}$ 53'26	
min. Earth dist.	3810 Mar 15 17:24	23° $\overline{\text{M}}$ 45'41	17.43277 AU	opposition	3818 Apr 21 18:31	1° $\overline{\text{M}}$ 51'12	0°39'58
direct	3810 May 29 09:47	21° $\overline{\text{M}}$ 42'19		min. Earth dist.	3818 Apr 22 12:18	1° $\overline{\text{M}}$ 49'16	17.33575 AU
max. Earth dist.	3810 Sep 17 06:55	26° $\overline{\text{M}}$ 07'04	19.41537 AU		3818 Jun 13 04:52	30° $\overline{\text{R}}$ $\overline{\text{U}}$	
				direct	3818 Jul 07 04:28	29° $\overline{\text{U}}$ 45'08	
conjunction	3810 Sep 18 07:40	26° $\overline{\text{M}}$ 10'55	0°45'21		3818 Jul 30 19:50	0° $\overline{\text{M}}$	
minimum elong	3810 Sep 18 07:40	26° $\overline{\text{M}}$ 10'55	0°45'22				
	3810 Nov 30 20:28	0° $\overline{\text{U}}$		conjunction	3818 Oct 27 11:19	4° $\overline{\text{M}}$ 16'29	0°34'38
retrograde	3811 Jan 05 06:09	0° $\overline{\text{U}}$ 34'23		minimum elong	3818 Oct 27 11:19	4° $\overline{\text{M}}$ 16'29	0°34'39
	3811 Feb 10 04:18	30° $\overline{\text{R}}$ $\overline{\text{M}}$		max. Earth dist.	3818 Oct 26 14:51	4° $\overline{\text{M}}$ 13'16	19.34128 AU
opposition	3811 Mar 19 18:50	28° $\overline{\text{M}}$ 31'36	0°50'26	retrograde	3819 Feb 12 03:39	8° $\overline{\text{M}}$ 39'26	
min. Earth dist.	3811 Mar 20 15:11	28° $\overline{\text{M}}$ 29'23	17.40002 AU	opposition	3819 Apr 26 19:46	6° $\overline{\text{M}}$ 37'19	0°37'16
direct	3811 Jun 03 10:21	26° $\overline{\text{M}}$ 25'44		min. Earth dist.	3819 Apr 27 13:43	6° $\overline{\text{M}}$ 35'23	17.34863 AU
	3811 Sep 08 15:34	0° $\overline{\text{U}}$		direct	3819 Jul 12 06:56	4° $\overline{\text{M}}$ 31'21	
max. Earth dist.	3811 Sep 22 11:44	0° $\overline{\text{U}}$ 51'27	19.38518 AU				
conjunction	3811 Sep 23 11:25	0° $\overline{\text{U}}$ 55'08	0°45'03	conjunction	3819 Nov 01 13:41	9° $\overline{\text{M}}$ 02'26	0°32'06
minimum elong	3811 Sep 23 11:25	0° $\overline{\text{U}}$ 55'08	0°45'03	minimum elong	3819 Nov 01 13:41	9° $\overline{\text{M}}$ 02'26	0°32'06
retrograde	3812 Jan 10 05:44	5° $\overline{\text{U}}$ 18'46		max. Earth dist.	3819 Oct 31 18:10	8° $\overline{\text{M}}$ 59'22	19.35646 AU
opposition	3812 Mar 23 17:36	3° $\overline{\text{U}}$ 15'58	0°49'56	retrograde	3820 Feb 17 04:17	13° $\overline{\text{M}}$ 24'57	
min. Earth dist.	3812 Mar 24 14:22	3° $\overline{\text{U}}$ 13'41	17.37259 AU	opposition	3820 Apr 30 21:05	11° $\overline{\text{M}}$ 22'59	0°34'17
direct	3812 Jun 07 11:09	1° $\overline{\text{U}}$ 09'55		min. Earth dist.	3820 May 01 13:26	11° $\overline{\text{M}}$ 21'13	17.36585 AU
				direct	3820 Jul 16 11:25	9° $\overline{\text{M}}$ 17'08	
conjunction	3812 Sep 27 15:08	5° $\overline{\text{U}}$ 39'57	0°44'26	conjunction	3820 Nov 05 15:31	13° $\overline{\text{M}}$ 47'47	0°29'20
minimum elong	3812 Sep 27 15:08	5° $\overline{\text{U}}$ 39'57	0°44'27	minimum elong	3820 Nov 05 15:31	13° $\overline{\text{M}}$ 47'47	0°29'20
max. Earth dist.	3812 Sep 26 14:27	5° $\overline{\text{U}}$ 36'06	19.36069 AU	max. Earth dist.	3820 Nov 04 21:01	13° $\overline{\text{M}}$ 44'53	19.37580 AU
retrograde	3813 Jan 14 05:16	10° $\overline{\text{U}}$ 03'43			3820 Nov 24 23:03	15° $\overline{\text{M}}$	
opposition	3813 Mar 28 16:41	8° $\overline{\text{U}}$ 00'54	0°49'05	retrograde	3821 Feb 21 02:52	18° $\overline{\text{M}}$ 09'49	
min. Earth dist.	3813 Mar 29 13:01	7° $\overline{\text{U}}$ 58'41	17.35121 AU	opposition	3821 May 05 22:35	16° $\overline{\text{M}}$ 07'58	0°31'06
direct	3813 Jun 12 12:23	5° $\overline{\text{U}}$ 54'43		min. Earth dist.	3821 May 06 15:02	16° $\overline{\text{M}}$ 06'12	17.38734 AU
					3821 Jun 02 17:25	15° $\overline{\text{R}}$ $\overline{\text{M}}$	
conjunction	3813 Oct 02 18:58	10° $\overline{\text{U}}$ 25'19	0°43'31	direct	3821 Jul 21 13:52	14° $\overline{\text{M}}$ 02'14	
minimum elong	3813 Oct 02 18:58	10° $\overline{\text{U}}$ 25'19	0°43'31		3821 Sep 07 01:46	15° $\overline{\text{M}}$	
max. Earth dist.	3813 Oct 01 19:51	10° $\overline{\text{U}}$ 21'41	19.34241 AU				
retrograde	3814 Jan 19 05:17	14° $\overline{\text{U}}$ 49'06		conjunction	3821 Nov 10 16:41	18° $\overline{\text{M}}$ 32'20	0°26'22
opposition	3814 Apr 02 16:23	12° $\overline{\text{U}}$ 46'21	0°47'54	minimum elong	3821 Nov 10 16:41	18° $\overline{\text{M}}$ 32'20	0°26'22
min. Earth dist.	3814 Apr 03 12:22	12° $\overline{\text{U}}$ 44'10	17.33607 AU	max. Earth dist.	3821 Nov 09 22:59	18° $\overline{\text{M}}$ 29'33	19.39950 AU
direct	3814 Jun 17 15:09	10° $\overline{\text{U}}$ 40'07		retrograde	3822 Feb 26 02:52	22° $\overline{\text{M}}$ 53'49	
				opposition	3822 May 10 23:52	20° $\overline{\text{M}}$ 52'04	0°27'41
conjunction	3814 Oct 07 22:26	15° $\overline{\text{U}}$ 11'06	0°42'18	min. Earth dist.	3822 May 11 14:18	20° $\overline{\text{M}}$ 50'31	17.41305 AU
minimum elong	3814 Oct 07 22:26	15° $\overline{\text{U}}$ 11'06	0°42'18	direct	3822 Jul 26 18:10	18° $\overline{\text{M}}$ 46'28	
max. Earth dist.	3814 Oct 06 22:49	15° $\overline{\text{U}}$ 07'24	19.33055 AU				
retrograde	3815 Jan 24 04:14	19° $\overline{\text{U}}$ 34'53		conjunction	3822 Nov 15 17:07	23° $\overline{\text{M}}$ 15'52	0°23'14
opposition	3815 Apr 07 16:24	17° $\overline{\text{U}}$ 32'13	0°46'23	minimum elong	3822 Nov 15 17:07	23° $\overline{\text{M}}$ 15'52	0°23'15
min. Earth dist.	3815 Apr 08 12:05	17° $\overline{\text{U}}$ 30'04	17.32742 AU	max. Earth dist.	3822 Nov 15 01:13	23° $\overline{\text{M}}$ 13'23	19.42733 AU
direct	3815 Jun 22 17:20	15° $\overline{\text{U}}$ 25'58		retrograde	3823 Mar 03 00:22	27° $\overline{\text{M}}$ 36'44	
max. Earth dist.	3815 Oct 12 04:05	19° $\overline{\text{U}}$ 53'49	19.32499 AU	opposition	3823 May 16 01:08	25° $\overline{\text{M}}$ 35'04	0°24'06
				min. Earth dist.	3823 May 16 15:29	25° $\overline{\text{M}}$ 33'32	17.44297 AU
conjunction	3815 Oct 13 02:05	19° $\overline{\text{U}}$ 57'16	0°40'48	direct	3823 Jul 31 20:12	23° $\overline{\text{M}}$ 29'37	
minimum elong	3815 Oct 13 02:05	19° $\overline{\text{U}}$ 57'16	0°40'48				
retrograde	3816 Jan 29 04:36	24° $\overline{\text{U}}$ 20'57		conjunction	3823 Nov 20 16:46	27° $\overline{\text{M}}$ 58'13	0°19'58
opposition	3816 Apr 11 16:40	22° $\overline{\text{U}}$ 18'26	0°44'33	minimum elong	3823 Nov 20 16:46	27° $\overline{\text{M}}$ 58'13	0°19'57
min. Earth dist.	3816 Apr 12 11:39	22° $\overline{\text{U}}$ 16'21	17.32471 AU	max. Earth dist.	3823 Nov 20 01:33	27° $\overline{\text{M}}$ 55'50	19.45951 AU
direct	3816 Jun 26 21:22	20° $\overline{\text{U}}$ 12'13			3823 Dec 24 04:49	0° $\overline{\text{Z}}$	
max. Earth dist.	3816 Oct 16 07:17	24° $\overline{\text{U}}$ 40'12	19.32519 AU	retrograde	3824 Mar 06 23:20	2° $\overline{\text{Z}}$ 18'23	
				opposition	3824 May 20 01:56	0° $\overline{\text{Z}}$ 16'49	0°20'23
conjunction	3816 Oct 17 05:29	24° $\overline{\text{U}}$ 43'41	0°39'00	min. Earth dist.	3824 May 20 14:00	0° $\overline{\text{Z}}$ 15'31	17.47724 AU
minimum elong	3816 Oct 17 05:29	24° $\overline{\text{U}}$ 43'41	0°39'00		3824 May 26 15:40	30° $\overline{\text{R}}$ $\overline{\text{M}}$	
retrograde	3817 Feb 02 03:43	29° $\overline{\text{U}}$ 07'12		direct	3824 Aug 04 23:53	28° $\overline{\text{M}}$ 11'31	
opposition	3817 Apr 16 17:29	27° $\overline{\text{U}}$ 04'49	0°42'24		3824 Oct 10 08:59	0° $\overline{\text{Z}}$	
min. Earth dist.	3817 Apr 17 12:29	27° $\overline{\text{U}}$ 02'45	17.32772 AU				
direct	3817 Jul 01 23:57	24° $\overline{\text{U}}$ 58'40		conjunction	3824 Nov 24 15:42	2° $\overline{\text{Z}}$ 39'12	0°16'34
max. Earth dist.	3817 Oct 21 11:44	29° $\overline{\text{U}}$ 26'53	19.33081 AU	minimum elong	3824 Nov 24 15:42	2° $\overline{\text{Z}}$ 39'12	0°16'34
				max. Earth dist.	3824 Nov 24 03:00	2° $\overline{\text{Z}}$ 37'13	19.49604 AU
conjunction	3817 Oct 22 08:33	29° $\overline{\text{U}}$ 30'09	0°36'57	retrograde	3825 Mar 11 19:47	6° $\overline{\text{Z}}$ 58'38	
minimum elong	3817 Oct 22 08:33	29° $\overline{\text{U}}$ 30'09	0°36'58	opposition	3825 May 25 02:48	4° $\overline{\text{Z}}$ 57'10	0°16'32

min. Earth dist.	3825 May 25 14:15	4°♂55'57	17.51607 AU	behind sun begin	3831 Dec 27 01:39	4°♂43'25	
direct	3825 Aug 10 01:44	2°♂52'05		behind sun end	3831 Dec 27 13:13	4°♂45'09	
				max. Earth dist.	3831 Dec 27 06:55	4°♂44'12	19.87222 AU
conjunction	3825 Nov 29 13:27	7°♂18'43	0°13'05	retrograde	3832 Apr 12 10:58	8°♂58'04	
minimum elong	3825 Nov 29 13:27	7°♂18'43	0°13'06	opposition	3832 Jun 26 21:06	6°♂57'53	0°-11'-15
behind sun begin	3825 Nov 29 09:28	7°♂18'07		min. Earth dist.	3832 Jun 26 20:07	6°♂57'59	17.90418 AU
behind sun end	3825 Nov 29 17:27	7°♂19'20		direct	3832 Sep 12 01:51	4°♂55'15	
max. Earth dist.	3825 Nov 29 01:40	7°♂16'53	19.53733 AU				
retrograde	3826 Mar 16 17:26	11°♂37'25		conjunction	3832 Dec 30 23:38	9°♂13'02	0°-11'-54
opposition	3826 May 30 03:09	9°♂36'02	0°12'36	minimum elong	3832 Dec 30 23:38	9°♂13'02	0°11'54
min. Earth dist.	3826 May 30 11:59	9°♂35'06	17.55975 AU	behind sun begin	3832 Dec 30 19:01	9°♂12'20	
direct	3826 Aug 15 04:36	7°♂31'12		behind sun end	3832 Dec 31 04:15	9°♂13'43	
				max. Earth dist.	3832 Dec 31 01:42	9°♂13'20	19.93671 AU
conjunction	3826 Dec 04 10:40	11°♂56'45	0°09'33	retrograde	3833 Apr 17 04:42	13°♂25'56	
minimum elong	3826 Dec 04 10:40	11°♂56'45	0°09'32	opposition	3833 Jul 01 18:31	11°♂25'56	0°-15'-3
behind sun begin	3826 Dec 04 05:09	11°♂55'54		min. Earth dist.	3833 Jul 01 15:52	11°♂26'13	17.96897 AU
behind sun end	3826 Dec 04 16:11	11°♂57'35		direct	3833 Sep 17 00:00	9°♂23'43	
max. Earth dist.	3826 Dec 04 01:51	11°♂55'23	19.58340 AU				
retrograde	3827 Mar 21 12:40	16°♂14'38		conjunction	3834 Jan 04 14:48	13°♂40'01	0°-15'-15
opposition	3827 Jun 04 03:07	14°♂13'26	0°08'37	minimum elong	3834 Jan 04 14:48	13°♂40'01	0°15'17
min. Earth dist.	3827 Jun 04 10:58	14°♂12'36	17.60815 AU	behind sun begin	3834 Jan 04 12:31	13°♂39'40	
direct	3827 Aug 20 05:46	12°♂08'53		behind sun end	3834 Jan 04 17:05	13°♂40'21	
				max. Earth dist.	3834 Jan 04 17:35	13°♂40'26	20.00169 AU
conjunction	3827 Dec 09 06:53	16°♂33'16	0°05'58	retrograde	3834 Apr 21 21:24	17°♂52'04	
minimum elong	3827 Dec 09 06:53	16°♂33'16	0°05'59	opposition	3834 Jul 06 15:20	15°♂52'13	0°-18'-43
behind sun begin	3827 Dec 09 00:34	16°♂32'19		min. Earth dist.	3834 Jul 06 11:32	15°♂52'36	18.03411 AU
behind sun end	3827 Dec 09 13:11	16°♂34'14		direct	3834 Sep 21 18:56	13°♂50'21	
max. Earth dist.	3827 Dec 08 22:53	16°♂32'03	19.63420 AU				
retrograde	3828 Mar 25 09:16	20°♂50'22		conjunction	3835 Jan 09 05:23	18°♂05'11	0°-18'-31
opposition	3828 Jun 08 02:45	18°♂49'20	0°04'36	minimum elong	3835 Jan 09 05:22	18°♂05'11	0°18'31
min. Earth dist.	3828 Jun 08 08:07	18°♂48'46	17.66111 AU	max. Earth dist.	3835 Jan 09 10:20	18°♂05'56	20.06670 AU
direct	3828 Aug 24 07:10	16°♂45'08		retrograde	3835 Apr 26 14:08	22°♂16'20	
				opposition	3835 Jul 11 11:18	20°♂16'37	0°-22'-16
conjunction	3828 Dec 13 02:20	21°♂08'19	0°02'22	min. Earth dist.	3835 Jul 11 05:44	20°♂17'11	18.09883 AU
minimum elong	3828 Dec 13 02:18	21°♂08'19	0°02'22	direct	3835 Sep 26 16:13	18°♂15'06	
behind sun begin	3828 Dec 12 19:42	21°♂07'19					
behind sun end	3828 Dec 13 08:54	21°♂09'19		conjunction	3836 Jan 13 19:00	22°♂28'26	0°-21'-38
max. Earth dist.	3828 Dec 12 21:25	21°♂07'35	19.68919 AU	minimum elong	3836 Jan 13 19:00	22°♂28'26	0°21'39
retrograde	3829 Mar 30 03:30	25°♂24'36		max. Earth dist.	3836 Jan 14 00:43	22°♂29'18	20.13116 AU
opposition	3829 Jun 13 02:06	23°♂23'47	0°00'35	retrograde	3836 Apr 30 05:10	26°♂38'44	
min. Earth dist.	3829 Jun 13 06:10	23°♂23'21	17.71787 AU	opposition	3836 Jul 15 06:54	24°♂39'05	0°-25'-40
desc. node	3829 Aug 05 15:49	21°♂34'01		min. Earth dist.	3836 Jul 15 00:28	24°♂39'45	18.16308 AU
direct	3829 Aug 29 07:20	21°♂19'58		direct	3836 Sep 30 10:03	22°♂37'53	
conjunction	3829 Dec 17 20:46	25°♂41'51	0°-1'-20	conjunction	3837 Jan 17 07:43	26°♂49'43	0°-24'-37
minimum elong	3829 Dec 17 20:47	25°♂41'51	0°01'20	minimum elong	3837 Jan 17 07:43	26°♂49'43	0°24'38
behind sun begin	3829 Dec 17 14:12	25°♂40'52		max. Earth dist.	3837 Jan 17 15:32	26°♂50'54	20.19508 AU
behind sun end	3829 Dec 18 03:23	25°♂42'51			3837 Mar 17 15:09	0°≈	
max. Earth dist.	3829 Dec 17 16:43	25°♂41'16	19.74772 AU	retrograde	3837 May 04 20:21	0°≈59'08	
retrograde	3830 Apr 03 23:00	29°♂57'20			3837 Jun 24 06:02	30°R♂	
opposition	3830 Jun 18 00:51	27°♂56'43	0°-3'-24	opposition	3837 Jul 20 01:39	28°♂59'34	0°-28'-53
min. Earth dist.	3830 Jun 18 02:52	27°♂56'31	17.77794 AU	min. Earth dist.	3837 Jul 19 17:05	29°♂00'27	18.22661 AU
direct	3830 Sep 03 06:17	25°♂53'18		direct	3837 Oct 05 06:08	26°♂58'40	
	3830 Dec 18 20:56	0°♂			3838 Jan 02 13:26	0°≈	
conjunction	3830 Dec 22 14:35	0°♂13'52	0°-4'-56	conjunction	3838 Jan 21 19:34	1°≈09'00	0°-27'-27
minimum elong	3830 Dec 22 14:35	0°♂13'52	0°04'57	minimum elong	3838 Jan 21 19:34	1°≈09'00	0°27'27
behind sun begin	3830 Dec 22 08:10	0°♂12'54		max. Earth dist.	3838 Jan 22 04:28	1°≈10'20	20.25831 AU
behind sun end	3830 Dec 22 21:00	0°♂14'50		retrograde	3838 May 09 09:54	5°≈17'34	
max. Earth dist.	3830 Dec 22 13:23	0°♂13'43	19.80905 AU	opposition	3838 Jul 24 19:37	3°≈18'02	0°-31'-55
retrograde	3831 Apr 08 16:54	4°♂28'30		min. Earth dist.	3838 Jul 24 10:21	3°≈18'59	18.28978 AU
opposition	3831 Jun 22 23:14	2°♂28'07	0°-7'-21	direct	3838 Oct 09 22:09	1°≈17'26	
min. Earth dist.	3831 Jun 22 23:51	2°♂28'03	17.84022 AU				
direct	3831 Sep 08 05:09	0°♂25'06		conjunction	3839 Jan 26 06:40	5°≈26'18	0°-30'-6
				minimum elong	3839 Jan 26 06:40	5°≈26'18	0°30'07
conjunction	3831 Dec 27 07:27	4°♂44'17	0°-8'-27	max. Earth dist.	3839 Jan 26 17:32	5°≈27'56	20.32128 AU
minimum elong	3831 Dec 27 07:26	4°♂44'17	0°08'28	retrograde	3839 May 13 23:32	9°≈34'02	



opposition	3839 Jul 29 12:49	7° $\approx$ 34'34	0°-34'-45	minimum elong	3847 Feb 28 00:55	8° $\times$ 48'45	0°44'01
min. Earth dist.	3839 Jul 29 01:08	7° $\approx$ 35'45	18.35256 AU	max. Earth dist.	3847 Feb 28 21:02	8° $\times$ 51'42	20.78678 AU
direct	3839 Oct 14 16:15	5° $\approx$ 34'16		retrograde	3847 Jun 16 18:46	12° $\times$ 51'44	
				min. Earth dist.	3847 Sep 01 11:22	10° $\times$ 55'07	18.81025 AU
conjunction	3840 Jan 30 16:51	9° $\approx$ 41'42	0°-32'-33	opposition	3847 Sep 02 07:40	10° $\times$ 53'05	0°-49'-8
minimum elong	3840 Jan 30 16:51	9° $\approx$ 41'42	0°32'34	direct	3847 Nov 17 21:32	8° $\times$ 55'31	
max. Earth dist.	3840 Jan 31 05:03	9° $\approx$ 43'32	20.38386 AU				
retrograde	3840 May 17 11:59	13° $\approx$ 48'41		conjunction	3848 Mar 03 07:15	12° $\times$ 53'40	0°-44'-46
opposition	3840 Aug 02 05:31	11° $\approx$ 49'17	0°-37'-21	minimum elong	3848 Mar 03 07:15	12° $\times$ 53'40	0°44'47
min. Earth dist.	3840 Aug 01 17:05	11° $\approx$ 50'33	18.41516 AU	max. Earth dist.	3848 Mar 04 03:57	12° $\times$ 56'41	20.83195 AU
direct	3840 Oct 18 06:32	9° $\approx$ 49'20		retrograde	3848 Jun 20 02:43	16° $\times$ 56'16	
				opposition	3848 Sep 05 19:38	14° $\times$ 57'38	0°-49'-50
conjunction	3841 Feb 03 02:29	13° $\approx$ 55'23	0°-34'-49	min. Earth dist.	3848 Sep 05 00:01	14° $\times$ 59'36	18.85317 AU
minimum elong	3841 Feb 03 02:29	13° $\approx$ 55'23	0°34'50	direct	3848 Nov 21 06:26	13° $\times$ 00'18	
max. Earth dist.	3841 Feb 03 16:28	13° $\approx$ 57'29	20.44631 AU				
	3841 Feb 21 07:27	15° $\approx$		conjunction	3849 Mar 07 13:24	16° $\times$ 57'33	0°-45'-18
retrograde	3841 May 22 00:49	18° $\approx$ 01'39		minimum elong	3849 Mar 07 13:24	16° $\times$ 57'33	0°45'18
opposition	3841 Aug 06 21:19	16° $\approx$ 02'21	0°-39'-45	max. Earth dist.	3849 Mar 08 10:12	17° $\times$ 00'35	20.87253 AU
min. Earth dist.	3841 Aug 06 06:24	16° $\approx$ 03'51	18.47733 AU	retrograde	3849 Jun 24 13:15	20° $\times$ 59'46	
	3841 Sep 02 20:39	15° $\times$		min. Earth dist.	3849 Sep 09 09:53	19° $\times$ 03'13	18.89132 AU
direct	3841 Oct 22 22:15	14° $\approx$ 02'45		opposition	3849 Sep 10 06:44	19° $\times$ 01'08	0°-50'-17
	3841 Dec 09 19:27	15° $\approx$		direct	3849 Nov 25 16:03	17° $\times$ 03'58	
conjunction	3842 Feb 07 11:23	18° $\approx$ 07'30	0°-36'-53	conjunction	3850 Mar 11 19:10	21° $\times$ 00'23	0°-45'-36
minimum elong	3842 Feb 07 11:22	18° $\approx$ 07'30	0°36'54	minimum elong	3850 Mar 11 19:10	21° $\times$ 00'23	0°45'37
max. Earth dist.	3842 Feb 08 02:40	18° $\approx$ 09'46	20.50803 AU	max. Earth dist.	3850 Mar 12 16:27	21° $\times$ 03'28	20.90820 AU
retrograde	3842 May 26 12:12	22° $\approx$ 13'06		retrograde	3850 Jun 28 20:35	25° $\times$ 02'15	
opposition	3842 Aug 11 12:37	20° $\approx$ 13'55	0°-41'-54	opposition	3850 Sep 14 17:28	23° $\times$ 03'34	0°-50'-29
min. Earth dist.	3842 Aug 10 21:21	20° $\approx$ 15'27	18.53863 AU	min. Earth dist.	3850 Sep 13 21:27	23° $\times$ 05'34	18.92469 AU
direct	3842 Oct 27 11:02	18° $\approx$ 14'41		direct	3850 Nov 30 00:07	21° $\times$ 06'32	
conjunction	3843 Feb 11 19:47	22° $\approx$ 18'11	0°-38'-44	conjunction	3851 Mar 16 00:36	25° $\times$ 02'10	0°-45'-40
minimum elong	3843 Feb 11 19:47	22° $\approx$ 18'11	0°38'45	minimum elong	3851 Mar 16 00:36	25° $\times$ 02'10	0°45'42
max. Earth dist.	3843 Feb 12 12:27	22° $\approx$ 20'39	20.56866 AU	max. Earth dist.	3851 Mar 16 21:56	25° $\times$ 05'15	20.93940 AU
retrograde	3843 May 31 00:26	26° $\approx$ 23'10		retrograde	3851 Jul 03 06:12	29° $\times$ 03'45	
min. Earth dist.	3843 Aug 15 09:34	24° $\approx$ 25'52	18.59839 AU	min. Earth dist.	3851 Sep 18 06:15	27° $\times$ 07'06	18.95377 AU
opposition	3843 Aug 16 03:02	24° $\approx$ 24'06	0°-43'-50	opposition	3851 Sep 19 03:29	27° $\times$ 04'59	0°-50'-26
direct	3843 Nov 01 00:51	22° $\approx$ 25'15		direct	3851 Dec 04 08:30	25° $\times$ 08'03	
conjunction	3844 Feb 16 03:41	26° $\approx$ 27'34	0°-40'-23	conjunction	3852 Mar 19 05:49	29° $\times$ 02'59	0°-45'-31
minimum elong	3844 Feb 16 03:41	26° $\approx$ 27'34	0°40'24	minimum elong	3852 Mar 19 05:49	29° $\times$ 02'59	0°45'32
max. Earth dist.	3844 Feb 16 21:29	26° $\approx$ 30'11	20.62741 AU	max. Earth dist.	3852 Mar 20 03:47	29° $\times$ 06'09	20.96642 AU
	3844 Apr 28 15:12	0° $\times$			3852 Apr 04 19:38	0° $\times$	
retrograde	3844 Jun 03 10:40	0° $\times$ 31'59		retrograde	3852 Jul 06 13:14	3° $\times$ 04'19	
	3844 Jul 10 06:57	30° $\times$		opposition	3852 Sep 22 13:13	1° $\times$ 05'29	0°-50'-7
opposition	3844 Aug 19 17:12	28° $\approx$ 33'03	0°-45'-32	min. Earth dist.	3852 Sep 21 16:38	1° $\times$ 07'32	18.97900 AU
min. Earth dist.	3844 Aug 18 23:45	28° $\approx$ 34'48	18.65614 AU		3852 Oct 21 12:06	30° $\times$	
direct	3844 Nov 04 12:12	26° $\approx$ 34'34		direct	3852 Dec 07 15:34	29° $\times$ 08'39	
	3845 Feb 09 08:05	0° $\times$			3853 Jan 22 01:27	0° $\times$	
conjunction	3845 Feb 19 11:03	0° $\times$ 35'44	0°-41'-49	conjunction	3853 Mar 23 10:49	3° $\times$ 02'57	0°-45'-8
minimum elong	3845 Feb 19 11:03	0° $\times$ 35'44	0°41'49	minimum elong	3853 Mar 23 10:49	3° $\times$ 02'57	0°45'10
max. Earth dist.	3845 Feb 20 05:52	0° $\times$ 38'30	20.68388 AU	max. Earth dist.	3853 Mar 24 08:50	3° $\times$ 06'08	20.98993 AU
retrograde	3845 Jun 07 22:30	4° $\times$ 39'38		retrograde	3853 Jul 10 22:49	7° $\times$ 04'08	
min. Earth dist.	3845 Aug 23 11:16	2° $\times$ 42'45	18.71114 AU	opposition	3853 Sep 26 22:20	5° $\times$ 05'12	0°-49'-34
opposition	3845 Aug 24 06:35	2° $\times$ 40'49	0°-46'-58	min. Earth dist.	3853 Sep 26 00:34	5° $\times$ 07'23	19.00074 AU
direct	3845 Nov 09 00:41	0° $\times$ 42'40		direct	3853 Dec 11 23:00	3° $\times$ 08'27	
conjunction	3846 Feb 23 18:09	4° $\times$ 42'47	0°-43'-1	conjunction	3854 Mar 27 15:49	7° $\times$ 02'16	0°-44'-32
minimum elong	3846 Feb 23 18:09	4° $\times$ 42'47	0°43'03	minimum elong	3854 Mar 27 15:50	7° $\times$ 02'16	0°44'32
max. Earth dist.	3846 Feb 24 13:50	4° $\times$ 45'40	20.73715 AU	max. Earth dist.	3854 Mar 28 14:21	7° $\times$ 05'30	21.00983 AU
retrograde	3846 Jun 12 07:28	8° $\times$ 46'12		retrograde	3854 Jul 15 05:28	11° $\times$ 03'19	
opposition	3846 Aug 28 19:24	6° $\times$ 47'29	0°-48'-11	min. Earth dist.	3854 Sep 30 10:03	9° $\times$ 06'26	19.01897 AU
min. Earth dist.	3846 Aug 28 00:36	6° $\times$ 49'22	18.76273 AU	opposition	3854 Oct 01 07:01	9° $\times$ 04'20	0°-48'-47
direct	3846 Nov 13 10:25	4° $\times$ 49'39		direct	3854 Dec 16 04:50	7° $\times$ 07'41	
conjunction	3847 Feb 28 00:56	8° $\times$ 48'45	0°-44'-1	conjunction	3855 Mar 31 20:45	11° $\times$ 01'04	0°-43'-43

minimum elong	3855 Mar 31 20:45	11°♊01'04	0°43'45	minimum elong	3863 May 02 19:15	12°♊52'03	0°30'13
max. Earth dist.	3855 Apr 01 19:06	11°♊04'17	21.02643 AU	max. Earth dist.	3863 May 03 12:58	12°♊54'35	21.00542 AU
retrograde	3855 Jul 19 15:13	15°♊02'04			3863 Jun 11 00:02	15°♊	
opposition	3855 Oct 05 15:25	13°♊03'03	0°-47'-46	retrograde	3863 Aug 21 12:37	16°♊54'47	
min. Earth dist.	3855 Oct 04 17:28	13°♊05'15	19.03381 AU		3863 Nov 05 05:30	15°♊♊	
direct	3855 Dec 20 11:43	11°♊06'29		opposition	3863 Nov 07 04:38	14°♊55'14	0°-31'-59
				min. Earth dist.	3863 Nov 06 12:13	14°♊56'54	18.99343 AU
conjunction	3856 Apr 04 01:37	14°♊59'33	0°-42'-42	direct	3864 Jan 21 07:39	12°♊58'37	
minimum elong	3856 Apr 04 01:37	14°♊59'33	0°42'43		3864 Apr 02 01:55	15°♊	
max. Earth dist.	3856 Apr 05 00:25	15°♊02'49	21.03941 AU				
retrograde	3856 Jul 22 22:03	19°♊00'35		conjunction	3864 May 06 02:26	16°♊52'20	0°-27'-44
opposition	3856 Oct 08 23:42	17°♊01'32	0°-46'-31	minimum elong	3864 May 06 02:26	16°♊52'20	0°27'45
min. Earth dist.	3856 Oct 08 02:41	17°♊03'38	19.04495 AU	max. Earth dist.	3864 May 06 19:39	16°♊54'48	20.97988 AU
direct	3856 Dec 23 16:33	15°♊05'04		retrograde	3864 Aug 24 20:42	20°♊55'27	
				opposition	3864 Nov 10 11:57	18°♊55'45	0°-29'-11
conjunction	3857 Apr 08 06:44	18°♊57'53	0°-41'-29	min. Earth dist.	3864 Nov 09 21:06	18°♊57'15	18.96560 AU
minimum elong	3857 Apr 08 06:44	18°♊57'53	0°41'30	direct	3865 Jan 24 13:39	16°♊58'57	
max. Earth dist.	3857 Apr 09 05:06	19°♊01'06	21.04877 AU				
retrograde	3857 Jul 27 07:39	22°♊59'00		conjunction	3865 May 10 10:07	20°♊53'06	0°-25'-7
min. Earth dist.	3857 Oct 12 09:56	21°♊02'05	19.05229 AU	minimum elong	3865 May 10 10:07	20°♊53'06	0°25'08
opposition	3857 Oct 13 07:28	20°♊59'55	0°-45'-3	max. Earth dist.	3865 May 11 01:46	20°♊55'20	20.95011 AU
direct	3857 Dec 27 23:08	19°♊03'32		retrograde	3865 Aug 29 07:11	24°♊56'40	
				opposition	3865 Nov 14 19:02	22°♊56'46	0°-26'-13
conjunction	3858 Apr 12 12:04	22°♊56'15	0°-40'-3	min. Earth dist.	3865 Nov 14 04:41	22°♊58'14	18.93385 AU
minimum elong	3858 Apr 12 12:04	22°♊56'15	0°40'05	direct	3866 Jan 28 19:47	20°♊59'46	
max. Earth dist.	3858 Apr 13 10:31	22°♊59'27	21.05394 AU				
retrograde	3858 Jul 31 15:06	26°♊57'30		conjunction	3866 May 14 18:17	24°♊54'28	0°-22'-23
opposition	3858 Oct 17 15:17	24°♊58'24	0°-43'-22	minimum elong	3866 May 14 18:17	24°♊54'28	0°22'23
min. Earth dist.	3858 Oct 16 19:02	25°♊00'26	19.05527 AU	max. Earth dist.	3866 May 15 09:29	24°♊56'38	20.91648 AU
direct	3859 Jan 01 03:32	23°♊02'05		retrograde	3866 Sep 02 15:27	28°♊58'31	
				opposition	3866 Nov 19 02:21	26°♊58'27	0°-23'-8
conjunction	3859 Apr 16 17:31	26°♊54'45	0°-38'-27	min. Earth dist.	3866 Nov 18 13:27	26°♊59'46	18.89852 AU
minimum elong	3859 Apr 16 17:31	26°♊54'45	0°38'28	direct	3867 Feb 02 01:22	25°♊01'14	
max. Earth dist.	3859 Apr 17 15:08	26°♊57'51	21.05474 AU				
	3859 Jun 17 02:41	0°♊		conjunction	3867 May 19 02:42	28°♊56'32	0°-19'-31
retrograde	3859 Aug 05 00:36	0°♊56'14		minimum elong	3867 May 19 02:42	28°♊56'32	0°19'33
	3859 Sep 24 10:13	30°♊♊		max. Earth dist.	3867 May 19 16:20	28°♊58'29	20.87971 AU
opposition	3859 Oct 21 22:53	28°♊57'06	0°-41'-29		3867 Jun 06 17:34	0°♊♊	
min. Earth dist.	3859 Oct 21 02:32	28°♊59'08	19.05364 AU	retrograde	3867 Sep 07 02:44	3°♊♊01'09	
direct	3860 Jan 05 09:49	27°♊00'48		opposition	3867 Nov 23 09:47	1°♊♊00'55	0°-19'-55
	3860 Apr 04 06:18	0°♊		min. Earth dist.	3867 Nov 22 21:23	1°♊♊02'11	18.86027 AU
					3867 Dec 19 11:08	30°♊♊	
conjunction	3860 Apr 19 23:27	0°♊53'33	0°-36'-39	direct	3868 Feb 06 08:23	29°♊03'29	
minimum elong	3860 Apr 19 23:27	0°♊53'33	0°36'41		3868 Mar 24 17:58	0°♊♊	
max. Earth dist.	3860 Apr 20 20:48	0°♊56'36	21.05053 AU				
retrograde	3860 Aug 08 08:43	4°♊55'17		conjunction	3868 May 22 11:58	2°♊♊59'30	0°-16'-34
min. Earth dist.	3860 Oct 24 11:43	2°♊57'59	19.04681 AU	minimum elong	3868 May 22 11:58	2°♊♊59'30	0°16'35
opposition	3860 Oct 25 06:29	2°♊56'06	0°-39'-23	max. Earth dist.	3868 May 23 01:11	3°♊♊01'23	20.84001 AU
direct	3861 Jan 08 14:37	0°♊59'48		retrograde	3868 Sep 10 11:24	7°♊♊04'42	
				opposition	3868 Nov 26 17:21	5°♊♊04'20	0°-16'-35
conjunction	3861 Apr 24 05:42	4°♊52'41	0°-34'-40	min. Earth dist.	3868 Nov 26 06:23	5°♊♊05'27	18.81921 AU
minimum elong	3861 Apr 24 05:42	4°♊52'41	0°34'41	direct	3869 Feb 09 14:01	3°♊♊06'40	
max. Earth dist.	3861 Apr 25 01:40	4°♊55'32	21.04109 AU				
retrograde	3861 Aug 12 18:30	8°♊54'43		conjunction	3869 May 26 21:46	7°♊♊03'29	0°-13'-31
opposition	3861 Oct 29 13:56	6°♊55'26	0°-37'-6	minimum elong	3869 May 26 21:47	7°♊♊03'29	0°13'33
min. Earth dist.	3861 Oct 28 19:27	6°♊57'18	19.03453 AU	behind sun begin	3869 May 26 18:09	7°♊♊02'59	
direct	3862 Jan 12 20:22	4°♊59'05		behind sun end	3869 May 27 01:24	7°♊♊04'00	
				max. Earth dist.	3869 May 27 09:09	7°♊♊05'07	20.79780 AU
conjunction	3862 Apr 28 12:21	8°♊52'11	0°-32'-31	retrograde	3869 Sep 14 23:29	11°♊♊09'21	
minimum elong	3862 Apr 28 12:21	8°♊52'11	0°32'32	opposition	3869 Dec 01 01:11	9°♊♊08'51	0°-13'-10
max. Earth dist.	3862 Apr 29 07:38	8°♊54'56	21.02591 AU	min. Earth dist.	3869 Nov 30 14:58	9°♊♊09'54	18.77571 AU
retrograde	3862 Aug 17 02:33	12°♊54'32		direct	3870 Feb 13 21:37	7°♊♊10'57	
opposition	3862 Nov 02 21:18	10°♊55'09	0°-34'-38				
min. Earth dist.	3862 Nov 02 04:30	10°♊56'51	19.01653 AU	conjunction	3870 May 31 08:18	11°♊♊08'40	0°-10'-24
direct	3863 Jan 17 02:01	8°♊58'41		minimum elong	3870 May 31 08:18	11°♊♊08'40	0°10'25
				behind sun begin	3870 May 31 03:04	11°♊♊07'56	
conjunction	3863 May 02 19:15	12°♊52'03	0°-30'-12	behind sun end	3870 May 31 13:32	11°♊♊09'24	

max. Earth dist.	3870 May 31 19:10	11°II10'14	20.75299 AU	min. Earth dist.	3876 Dec 29 19:31	8°☾20'53	18.39470 AU
retrograde	3870 Sep 19 09:20	15°II15'12		direct	3877 Mar 14 10:51	6°☾21'00	
opposition	3870 Dec 05 09:19	13°II14'37	0°-9'-40				
min. Earth dist.	3870 Dec 05 00:35	13°II15'31	18.72963 AU	conjunction	3877 Jun 30 09:07	10°☾26'51	0°12'40
direct	3871 Feb 18 04:11	11°II16'31		minimum elong	3877 Jun 30 09:06	10°☾26'51	0°12'40
				behind sun begin	3877 Jun 30 04:56	10°☾26'15	
conjunction	3871 Jun 04 19:30	15°II15'11	0°-7'-13	behind sun end	3877 Jun 30 13:17	10°☾27'26	
minimum elong	3871 Jun 04 19:30	15°II15'11	0°07'14	max. Earth dist.	3877 Jun 30 06:32	10°☾26'29	20.36263 AU
behind sun begin	3871 Jun 04 13:22	15°II14'19		retrograde	3877 Oct 19 09:06	14°☾38'56	
behind sun end	3871 Jun 05 01:39	15°II16'03		opposition	3878 Jan 03 06:17	12°☾37'26	0°15'50
max. Earth dist.	3871 Jun 05 04:16	15°II16'26	20.70586 AU	min. Earth dist.	3878 Jan 03 08:35	12°☾37'11	18.32974 AU
retrograde	3871 Sep 23 22:00	19°II22'28		direct	3878 Mar 18 22:13	10°☾37'06	
opposition	3871 Dec 09 17:49	17°II21'47	0°-6'-6				
min. Earth dist.	3871 Dec 09 10:08	17°II22'34	18.68123 AU	conjunction	3878 Jul 05 02:12	14°☾44'17	0°15'54
direct	3872 Feb 22 12:07	15°II23'27		minimum elong	3878 Jul 05 02:12	14°☾44'17	0°15'54
				max. Earth dist.	3878 Jul 04 23:01	14°☾43'50	20.29691 AU
conjunction	3872 Jun 08 07:39	19°II23'11	0°-3'-58	retrograde	3878 Oct 24 00:50	18°☾57'12	
minimum elong	3872 Jun 08 07:38	19°II23'11	0°04'00	opposition	3879 Jan 07 18:01	16°☾55'32	0°19'24
behind sun begin	3872 Jun 08 01:01	19°II22'15		min. Earth dist.	3879 Jan 07 21:28	16°☾55'10	18.26353 AU
behind sun end	3872 Jun 08 14:16	19°II24'07		direct	3879 Mar 23 10:22	14°☾54'47	
max. Earth dist.	3872 Jun 08 15:43	19°II24'20	20.65607 AU				
retrograde	3872 Sep 27 09:54	23°II31'14		conjunction	3879 Jul 09 20:00	19°☾03'21	0°19'04
opposition	3872 Dec 13 02:45	21°II30'27	0°-2'-28	minimum elong	3879 Jul 09 20:00	19°☾03'21	0°19'03
min. Earth dist.	3872 Dec 12 20:45	21°II31'05	18.62998 AU	max. Earth dist.	3879 Jul 09 14:00	19°☾02'28	20.23050 AU
direct	3873 Feb 25 19:57	19°II31'53		retrograde	3879 Oct 28 17:04	23°☾17'07	
				opposition	3880 Jan 12 06:15	21°☾15'15	0°22'52
conjunction	3873 Jun 12 20:37	23°II32'45	0°00'-38	min. Earth dist.	3880 Jan 12 11:30	21°☾14'41	18.19711 AU
minimum elong	3873 Jun 12 20:38	23°II32'45	0°00'38	direct	3880 Mar 26 22:34	19°☾14'04	
behind sun begin	3873 Jun 12 13:56	23°II31'48					
behind sun end	3873 Jun 13 03:20	23°II33'41		conjunction	3880 Jul 13 14:49	23°☾24'05	0°22'08
max. Earth dist.	3873 Jun 13 02:01	23°II33'29	20.60345 AU	minimum elong	3880 Jul 13 14:49	23°☾24'05	0°22'09
asc. node	3873 Aug 21 02:39	26°II58'39		max. Earth dist.	3880 Jul 13 08:23	23°☾23'08	20.16406 AU
retrograde	3873 Oct 01 23:19	27°II41'36		retrograde	3880 Nov 01 10:38	27°☾38'41	
opposition	3873 Dec 17 12:01	25°II40'43	0°01'11	opposition	3881 Jan 15 19:05	25°☾36'40	0°26'14
min. Earth dist.	3873 Dec 17 07:34	25°II41'11	18.57581 AU	min. Earth dist.	3881 Jan 16 01:10	25°☾36'01	18.13085 AU
direct	3874 Mar 02 04:46	23°II41'51		direct	3881 Mar 31 12:20	23°☾35'06	
conjunction	3874 Jun 17 10:36	27°II43'55	0°02'46	conjunction	3881 Jul 18 10:16	27°☾46'33	0°25'06
minimum elong	3874 Jun 17 10:36	27°II43'55	0°02'46	minimum elong	3881 Jul 18 10:15	27°☾46'33	0°25'05
behind sun begin	3874 Jun 17 03:54	27°II42'58		max. Earth dist.	3881 Jul 18 01:07	27°☾45'12	20.09818 AU
behind sun end	3874 Jun 17 17:19	27°II44'51			3881 Aug 26 14:33	0°♂	
max. Earth dist.	3874 Jun 17 14:59	27°II44'30	20.54759 AU	retrograde	3881 Nov 06 03:40	2°♂02'00	
	3874 Jul 28 12:46	0°☾		opposition	3882 Jan 20 08:31	29°☾59'51	0°29'27
retrograde	3874 Oct 06 12:45	1°☾53'33			3882 Jan 20 07:06	30°♂☾	
	3874 Dec 18 22:43	30°♂II		min. Earth dist.	3882 Jan 20 16:24	29°☾59'00	18.06563 AU
opposition	3874 Dec 21 21:55	29°II52'34	0°04'52	direct	3882 Apr 05 01:13	27°☾57'53	
min. Earth dist.	3874 Dec 21 19:08	29°II52'51	18.51832 AU		3882 Jun 15 00:52	0°♂	
direct	3875 Mar 06 13:59	27°II53'24		conjunction	3882 Jul 23 06:40	2°♂10'50	0°27'55
	3875 May 18 10:18	0°☾		minimum elong	3882 Jul 23 06:40	2°♂10'50	0°27'55
conjunction	3875 Jun 22 01:08	1°☾56'39	0°06'06	max. Earth dist.	3882 Jul 22 21:15	2°♂09'26	20.03358 AU
minimum elong	3875 Jun 22 01:07	1°☾56'39	0°06'06	retrograde	3882 Nov 10 23:15	6°♂127'07	
behind sun begin	3875 Jun 21 18:44	1°☾55'45		opposition	3883 Jan 24 22:37	4°♂124'52	0°32'32
behind sun end	3875 Jun 22 07:30	1°☾57'34		min. Earth dist.	3883 Jan 25 06:58	4°♂123'58	18.00183 AU
max. Earth dist.	3875 Jun 22 02:32	1°☾56'50	20.48864 AU	direct	3883 Apr 09 16:48	2°♂122'34	
retrograde	3875 Oct 11 03:14	6°☾07'08					
opposition	3875 Dec 26 08:18	4°☾05'59	0°08'33	conjunction	3883 Jul 28 03:41	6°♂137'00	0°30'36
min. Earth dist.	3875 Dec 26 07:15	4°☾06'05	18.45787 AU	minimum elong	3883 Jul 28 03:41	6°♂137'00	0°30'36
direct	3876 Mar 10 00:10	2°☾06'26		max. Earth dist.	3883 Jul 27 15:50	6°♂135'14	19.97071 AU
				retrograde	3883 Nov 15 17:01	10°♂154'08	
conjunction	3876 Jun 25 16:48	6°☾10'58	0°09'24	opposition	3884 Jan 29 13:31	8°♂151'49	0°35'26
minimum elong	3876 Jun 25 16:48	6°☾10'58	0°09'23	min. Earth dist.	3884 Jan 29 23:45	8°♂150'43	17.94001 AU
behind sun begin	3876 Jun 25 11:11	6°☾10'10		direct	3884 Apr 13 06:54	6°♂149'10	
behind sun end	3876 Jun 25 22:24	6°☾11'46					
max. Earth dist.	3876 Jun 25 17:15	6°☾11'02	20.42675 AU	conjunction	3884 Aug 01 01:52	11°♂05'08	0°33'07
retrograde	3876 Oct 14 17:44	10°☾22'15		minimum elong	3884 Aug 01 01:52	11°♂05'08	0°33'07
opposition	3876 Dec 29 19:00	8°☾20'56	0°12'13	max. Earth dist.	3884 Jul 31 13:38	11°♂03'18	19.90987 AU

	3884 Oct 20 22:44	15°♈		conjunction	3892 Sep 08 12:12	17°♏54'31	0°45'13
retrograde	3884 Nov 19 14:03	15°♏23'05		minimum elong	3892 Sep 08 12:12	17°♏54'31	0°45'13
	3884 Dec 19 08:06	15°♏		max. Earth dist.	3892 Sep 07 12:52	17°♏50'54	19.49441 AU
opposition	3885 Feb 02 04:53	13°♏20'44	0°38'08	retrograde	3892 Dec 26 18:23	22°♏17'15	
min. Earth dist.	3885 Feb 02 15:34	13°♏19'34	17.88015 AU	opposition	3893 Mar 10 10:56	20°♏14'29	0°50'34
direct	3885 Apr 18 00:30	11°♏17'48		min. Earth dist.	3893 Mar 11 06:05	20°♏12'24	17.47473 AU
	3885 Jul 27 06:36	15°♏		direct	3893 May 24 22:59	18°♏09'05	
max. Earth dist.	3885 Aug 05 10:13	15°♏33'05	19.85098 AU				
				conjunction	3893 Sep 13 15:35	22°♏36'36	0°45'29
conjunction	3885 Aug 06 00:47	15°♏35'17	0°35'28	minimum elong	3893 Sep 13 15:35	22°♏36'36	0°45'29
minimum elong	3885 Aug 06 00:47	15°♏35'17	0°35'28	max. Earth dist.	3893 Sep 12 16:27	22°♏33'01	19.45546 AU
retrograde	3885 Nov 24 08:36	19°♏54'02		retrograde	3893 Dec 31 16:45	26°♏59'38	
opposition	3886 Feb 06 21:16	17°♏51'39	0°40'38	opposition	3894 Mar 15 08:36	24°♏56'50	0°50'42
min. Earth dist.	3886 Feb 07 10:03	17°♏50'16	17.82234 AU	min. Earth dist.	3894 Mar 16 04:53	24°♏54'37	17.43816 AU
direct	3886 Apr 22 16:41	15°♏48'26		direct	3894 May 29 21:33	22°♏51'10	
max. Earth dist.	3886 Aug 10 09:15	20°♏05'07	19.79404 AU				
				conjunction	3894 Sep 18 18:50	27°♏19'32	0°45'26
conjunction	3886 Aug 11 00:26	20°♏07'25	0°37'36	minimum elong	3894 Sep 18 18:50	27°♏19'32	0°45'26
minimum elong	3886 Aug 11 00:26	20°♏07'25	0°37'35	max. Earth dist.	3894 Sep 17 18:38	27°♏15'47	19.42142 AU
retrograde	3886 Nov 29 06:30	24°♏26'56			3894 Nov 03 18:07	0°♏	
opposition	3887 Feb 11 14:17	22°♏24'32	0°42'55	retrograde	3895 Jan 05 17:09	1°♏42'50	
min. Earth dist.	3887 Feb 12 03:24	22°♏23'06	17.76626 AU		3895 Mar 12 14:54	30°♏	
direct	3887 Apr 27 12:37	20°♏21'02		opposition	3895 Mar 20 06:37	29°♏39'59	0°50'30
max. Earth dist.	3887 Aug 15 07:37	24°♏38'49	19.73871 AU	min. Earth dist.	3895 Mar 21 02:22	29°♏37'49	17.40678 AU
				direct	3895 Jun 03 22:59	27°♏34'06	
conjunction	3887 Aug 16 00:58	24°♏41'27	0°39'31		3895 Aug 20 18:05	0°♏	
minimum elong	3887 Aug 16 00:58	24°♏41'27	0°39'31				
retrograde	3887 Dec 04 01:49	29°♏01'40		conjunction	3895 Sep 23 22:33	2°♏03'14	0°45'06
opposition	3888 Feb 16 08:05	26°♏59'14	0°44'56	minimum elong	3895 Sep 23 22:33	2°♏03'14	0°45'06
min. Earth dist.	3888 Feb 16 23:29	26°♏57'34	17.71188 AU	max. Earth dist.	3895 Sep 22 23:20	1°♏59'37	19.39271 AU
direct	3888 May 01 06:55	24°♏55'25		retrograde	3896 Jan 10 16:07	6°♏26'41	
max. Earth dist.	3888 Aug 19 07:48	29°♏14'24	19.68515 AU	opposition	3896 Mar 24 05:11	4°♏23'52	0°49'57
				min. Earth dist.	3896 Mar 25 01:29	4°♏21'38	17.38097 AU
conjunction	3888 Aug 20 02:18	29°♏17'14	0°41'11	direct	3896 Jun 07 22:38	2°♏17'50	
minimum elong	3888 Aug 20 02:17	29°♏17'14	0°41'11	max. Earth dist.	3896 Sep 27 02:00	6°♏43'52	19.36995 AU
	3888 Aug 31 19:20	0°♏					
retrograde	3888 Dec 08 00:39	3°♏38'05		conjunction	3896 Sep 28 02:11	6°♏47'38	0°44'26
opposition	3889 Feb 20 02:34	1°♏35'36	0°46'40	minimum elong	3896 Sep 28 02:11	6°♏47'38	0°44'26
min. Earth dist.	3889 Feb 20 18:11	1°♏33'54	17.65919 AU	retrograde	3897 Jan 14 16:40	11°♏11'13	
	3889 Apr 03 00:01	30°♏		opposition	3897 Mar 29 04:15	9°♏08'26	0°49'04
direct	3889 May 06 05:06	29°♏31'28		min. Earth dist.	3897 Mar 29 23:58	9°♏06'17	17.36131 AU
	3889 Jun 08 00:18	0°♏		direct	3897 Jun 13 00:48	7°♏02'19	
max. Earth dist.	3889 Aug 24 07:59	3°♏51'31	19.63331 AU	max. Earth dist.	3897 Oct 02 07:14	11°♏29'09	19.35332 AU
conjunction	3889 Aug 25 04:05	3°♏54'35	0°42'37	conjunction	3897 Oct 03 05:51	11°♏32'41	0°43'29
minimum elong	3889 Aug 25 04:05	3°♏54'35	0°42'37	minimum elong	3897 Oct 03 05:51	11°♏32'41	0°43'29
retrograde	3889 Dec 12 21:05	8°♏16'01		retrograde	3898 Jan 19 16:09	15°♏56'20	
opposition	3890 Feb 24 21:51	6°♏13'29	0°48'07	opposition	3898 Apr 03 03:53	13°♏53'39	0°47'50
min. Earth dist.	3890 Feb 25 15:33	6°♏11'33	17.60855 AU	min. Earth dist.	3898 Apr 03 23:32	13°♏51'31	17.34766 AU
direct	3890 May 11 01:25	4°♏09'01		direct	3898 Jun 18 01:42	11°♏47'31	
max. Earth dist.	3890 Aug 29 09:04	8°♏30'05	19.58395 AU	max. Earth dist.	3898 Oct 07 10:05	16°♏14'40	19.34274 AU
conjunction	3890 Aug 30 06:22	8°♏33'21	0°43'46	conjunction	3898 Oct 08 09:25	16°♏18'20	0°42'14
minimum elong	3890 Aug 30 06:22	8°♏33'21	0°43'47	minimum elong	3898 Oct 08 09:25	16°♏18'20	0°42'14
retrograde	3890 Dec 17 20:34	12°♏55'18		retrograde	3899 Jan 24 16:31	20°♏41'59	
opposition	3891 Mar 01 17:33	10°♏52'41	0°49'16	opposition	3899 Apr 08 03:44	18°♏39'26	0°46'17
min. Earth dist.	3891 Mar 02 11:13	10°♏50'45	17.56057 AU	min. Earth dist.	3899 Apr 08 23:05	18°♏37'19	17.34002 AU
direct	3891 May 16 00:47	8°♏47'54		direct	3899 Jun 23 04:31	16°♏33'18	
max. Earth dist.	3891 Sep 03 11:05	13°♏09'59	19.53740 AU				
				conjunction	3899 Oct 13 13:07	21°♏04'27	0°40'41
conjunction	3891 Sep 04 09:08	13°♏13'23	0°44'38	minimum elong	3899 Oct 13 13:07	21°♏04'27	0°40'41
minimum elong	3891 Sep 04 09:08	13°♏13'23	0°44'38	max. Earth dist.	3899 Oct 12 15:17	21°♏01'02	19.33785 AU
retrograde	3891 Dec 22 18:16	17°♏35'45		retrograde	3900 Jan 29 16:18	25°♏28'02	
opposition	3892 Mar 05 14:05	15°♏33'04	0°50'05	opposition	3900 Apr 13 04:09	23°♏25'38	0°44'24
min. Earth dist.	3892 Mar 06 09:29	15°♏30'57	17.51573 AU	min. Earth dist.	3900 Apr 13 23:05	23°♏23'34	17.33766 AU
direct	3892 May 19 22:27	13°♏27'58		direct	3900 Jun 28 07:22	21°♏19'34	

conjunction	3900 Oct 18 16:28	25° $\overline{\Delta}$ 50'53	0°38'52		3908 Jun 26 01:51	30° $\overline{\text{R}}$ $\overline{\text{M}}$	
minimum elong	3900 Oct 18 16:28	25° $\overline{\Delta}$ 50'53	0°38'52	direct	3908 Aug 06 10:40	29° $\overline{\text{M}}$ 18'00	
max. Earth dist.	3900 Oct 17 18:11	25° $\overline{\Delta}$ 47'23	19.33806 AU		3908 Sep 15 19:42	0° $\overline{\Delta}$	
	3901 Jan 12 03:24	0° $\overline{\text{M}}$					
retrograde	3901 Feb 03 15:54	0° $\overline{\text{M}}$ 14'19		conjunction	3908 Nov 26 02:04	3° $\overline{\Delta}$ 45'31	0°16'10
	3901 Feb 26 12:06	30° $\overline{\text{R}}$ $\overline{\Delta}$		minimum elong	3908 Nov 26 02:04	3° $\overline{\Delta}$ 45'31	0°16'10
opposition	3901 Apr 18 04:55	28° $\overline{\Delta}$ 12'03	0°42'13	max. Earth dist.	3908 Nov 25 13:29	3° $\overline{\Delta}$ 43'33	19.50388 AU
min. Earth dist.	3901 Apr 18 23:48	28° $\overline{\Delta}$ 10'00	17.34040 AU	retrograde	3909 Mar 13 06:04	8° $\overline{\Delta}$ 04'47	
direct	3901 Jul 03 10:55	26° $\overline{\Delta}$ 06'03		opposition	3909 May 26 13:14	6° $\overline{\Delta}$ 03'19	0°16'04
	3901 Oct 13 21:22	0° $\overline{\text{M}}$		min. Earth dist.	3909 May 27 00:37	6° $\overline{\Delta}$ 02'07	17.52424 AU
				direct	3909 Aug 11 11:58	3° $\overline{\Delta}$ 58'15	
conjunction	3901 Oct 23 19:40	0° $\overline{\text{M}}$ 37'24	0°36'46				
minimum elong	3901 Oct 23 19:40	0° $\overline{\text{M}}$ 37'24	0°36'46	conjunction	3909 Nov 30 23:52	8° $\overline{\Delta}$ 24'44	0°12'40
max. Earth dist.	3901 Oct 22 22:47	0° $\overline{\text{M}}$ 34'07	19.34319 AU	minimum elong	3909 Nov 30 23:52	8° $\overline{\Delta}$ 24'44	0°12'40
retrograde	3902 Feb 08 16:01	5° $\overline{\text{M}}$ 00'35		behind sun begin	3909 Nov 30 19:38	8° $\overline{\Delta}$ 24'05	
opposition	3902 Apr 23 05:55	2° $\overline{\text{M}}$ 58'27	0°39'44	behind sun end	3909 Dec 01 04:06	8° $\overline{\Delta}$ 25'23	
min. Earth dist.	3902 Apr 23 23:49	2° $\overline{\text{M}}$ 56'30	17.34776 AU	max. Earth dist.	3909 Nov 30 12:18	8° $\overline{\Delta}$ 22'56	19.54586 AU
direct	3902 Jul 08 15:07	0° $\overline{\text{M}}$ 52'31		retrograde	3910 Mar 18 03:41	12° $\overline{\Delta}$ 43'15	
				opposition	3910 May 31 13:21	10° $\overline{\Delta}$ 41'55	0°12'07
conjunction	3902 Oct 28 22:21	5° $\overline{\text{M}}$ 23'44	0°34'25	min. Earth dist.	3910 May 31 22:02	10° $\overline{\Delta}$ 40'59	17.56872 AU
minimum elong	3902 Oct 28 22:21	5° $\overline{\text{M}}$ 23'44	0°34'25	direct	3910 Aug 16 15:01	8° $\overline{\Delta}$ 37'06	
max. Earth dist.	3902 Oct 28 01:33	5° $\overline{\text{M}}$ 20'28	19.35282 AU				
retrograde	3903 Feb 13 14:56	9° $\overline{\text{M}}$ 46'36		conjunction	3910 Dec 05 20:59	13° $\overline{\Delta}$ 02'30	0°09'06
opposition	3903 Apr 28 07:09	7° $\overline{\text{M}}$ 44'35	0°36'59	minimum elong	3910 Dec 05 20:59	13° $\overline{\Delta}$ 02'30	0°09'07
min. Earth dist.	3903 Apr 29 01:10	7° $\overline{\text{M}}$ 42'38	17.35963 AU	behind sun begin	3910 Dec 05 15:21	13° $\overline{\Delta}$ 01'38	
direct	3903 Jul 13 18:12	5° $\overline{\text{M}}$ 38'44		behind sun end	3910 Dec 06 02:37	13° $\overline{\Delta}$ 03'21	
max. Earth dist.	3903 Nov 02 05:02	10° $\overline{\text{M}}$ 06'35	19.36689 AU	max. Earth dist.	3910 Dec 05 12:17	13° $\overline{\Delta}$ 01'09	19.59277 AU
				retrograde	3911 Mar 22 22:54	17° $\overline{\Delta}$ 20'14	
conjunction	3903 Nov 03 00:43	10° $\overline{\text{M}}$ 09'41	0°31'50	opposition	3911 Jun 05 13:20	15° $\overline{\Delta}$ 19'04	0°08'07
minimum elong	3903 Nov 03 00:43	10° $\overline{\text{M}}$ 09'41	0°31'50	min. Earth dist.	3911 Jun 05 21:10	15° $\overline{\Delta}$ 18'14	17.61785 AU
retrograde	3904 Feb 18 15:29	14° $\overline{\text{M}}$ 32'07		direct	3911 Aug 21 15:49	13° $\overline{\Delta}$ 14'34	
opposition	3904 May 02 08:18	12° $\overline{\text{M}}$ 30'13	0°33'59				
min. Earth dist.	3904 May 03 00:52	12° $\overline{\text{M}}$ 28'26	17.37572 AU	conjunction	3911 Dec 10 17:05	17° $\overline{\Delta}$ 38'48	0°05'31
direct	3904 Jul 17 22:52	10° $\overline{\text{M}}$ 24'27		minimum elong	3911 Dec 10 17:05	17° $\overline{\Delta}$ 38'48	0°05'30
max. Earth dist.	3904 Nov 06 07:40	14° $\overline{\text{M}}$ 52'01	19.38517 AU	behind sun begin	3911 Dec 10 10:43	17° $\overline{\Delta}$ 37'50	
				behind sun end	3911 Dec 10 23:28	17° $\overline{\Delta}$ 39'47	
conjunction	3904 Nov 07 02:31	14° $\overline{\text{M}}$ 54'59	0°29'02	max. Earth dist.	3911 Dec 10 09:13	17° $\overline{\Delta}$ 37'36	19.64416 AU
minimum elong	3904 Nov 07 02:31	14° $\overline{\text{M}}$ 54'59	0°29'01	retrograde	3912 Mar 26 19:13	21° $\overline{\Delta}$ 55'45	
	3904 Nov 08 10:23	15° $\overline{\text{M}}$		opposition	3912 Jun 09 12:49	19° $\overline{\Delta}$ 54'47	0°04'05
retrograde	3905 Feb 22 13:36	19° $\overline{\text{M}}$ 16'55		min. Earth dist.	3912 Jun 09 18:09	19° $\overline{\Delta}$ 54'13	17.67118 AU
opposition	3905 May 07 09:41	17° $\overline{\text{M}}$ 15'08	0°30'44	direct	3912 Aug 25 17:08	17° $\overline{\Delta}$ 50'38	
min. Earth dist.	3905 May 08 02:17	17° $\overline{\text{M}}$ 13'21	17.39622 AU				
direct	3905 Jul 23 00:52	15° $\overline{\text{M}}$ 09'27		conjunction	3912 Dec 14 12:35	22° $\overline{\Delta}$ 13'40	0°01'53
max. Earth dist.	3905 Nov 11 09:41	19° $\overline{\text{M}}$ 36'37	19.40796 AU	minimum elong	3912 Dec 14 12:35	22° $\overline{\Delta}$ 13'40	0°01'54
				behind sun begin	3912 Dec 14 05:58	22° $\overline{\Delta}$ 12'40	
conjunction	3905 Nov 12 03:27	19° $\overline{\text{M}}$ 39'25	0°26'02	behind sun end	3912 Dec 14 19:11	22° $\overline{\Delta}$ 14'40	
minimum elong	3905 Nov 12 03:27	19° $\overline{\text{M}}$ 39'25	0°26'03	max. Earth dist.	3912 Dec 14 07:41	22° $\overline{\Delta}$ 12'56	19.69931 AU
retrograde	3906 Feb 27 13:57	24° $\overline{\text{M}}$ 00'47		retrograde	3913 Mar 31 14:04	26° $\overline{\Delta}$ 29'47	
opposition	3906 May 12 10:48	21° $\overline{\text{M}}$ 59'04	0°27'18	opposition	3913 Jun 14 12:07	24° $\overline{\Delta}$ 29'02	0°00'03
min. Earth dist.	3906 May 13 01:24	21° $\overline{\text{M}}$ 57'30	17.42110 AU	min. Earth dist.	3913 Jun 14 16:25	24° $\overline{\Delta}$ 28'35	17.72789 AU
direct	3906 Jul 28 05:08	19° $\overline{\text{M}}$ 53'30		desc. node	3913 Jun 19 00:52	24° $\overline{\Delta}$ 17'37	
max. Earth dist.	3906 Nov 16 11:45	24° $\overline{\text{M}}$ 20'14	19.43513 AU	direct	3913 Aug 30 16:56	22° $\overline{\Delta}$ 25'16	
conjunction	3906 Nov 17 03:51	24° $\overline{\text{M}}$ 22'46	0°22'53	conjunction	3913 Dec 19 06:57	26° $\overline{\Delta}$ 47'00	0°-1'-50
minimum elong	3906 Nov 17 03:51	24° $\overline{\text{M}}$ 22'46	0°22'52	minimum elong	3913 Dec 19 06:57	26° $\overline{\Delta}$ 47'00	0°01'51
retrograde	3907 Mar 04 11:03	28° $\overline{\text{M}}$ 43'28		behind sun begin	3913 Dec 19 00:21	26° $\overline{\Delta}$ 46'00	
opposition	3907 May 17 11:46	26° $\overline{\text{M}}$ 41'50	0°23'41	behind sun end	3913 Dec 19 13:33	26° $\overline{\Delta}$ 48'00	
min. Earth dist.	3907 May 18 02:14	26° $\overline{\text{M}}$ 40'17	17.45060 AU	max. Earth dist.	3913 Dec 19 02:45	26° $\overline{\Delta}$ 46'24	19.75750 AU
direct	3907 Aug 02 06:38	24° $\overline{\text{M}}$ 36'23			3914 Feb 15 19:20	0° $\overline{\Delta}$	
				retrograde	3914 Apr 05 09:13	1° $\overline{\Delta}$ 02'19	
conjunction	3907 Nov 22 03:23	29° $\overline{\text{M}}$ 04'50	0°19'34		3914 May 26 06:14	30° $\overline{\text{R}}$ $\overline{\Delta}$	
minimum elong	3907 Nov 22 03:23	29° $\overline{\text{M}}$ 04'50	0°19'35	opposition	3914 Jun 19 10:51	29° $\overline{\Delta}$ 01'46	0°-3'-57
max. Earth dist.	3907 Nov 21 12:16	29° $\overline{\text{M}}$ 02'28	19.46710 AU	min. Earth dist.	3914 Jun 19 13:01	29° $\overline{\Delta}$ 01'32	17.78733 AU
	3907 Dec 06 20:55	0° $\overline{\Delta}$		direct	3914 Sep 04 16:22	26° $\overline{\Delta}$ 58'22	
retrograde	3908 Mar 08 10:02	3° $\overline{\Delta}$ 24'51			3914 Dec 02 11:28	0° $\overline{\Delta}$	
opposition	3908 May 21 12:32	1° $\overline{\Delta}$ 23'17	0°19'56				
min. Earth dist.	3908 May 22 00:33	1° $\overline{\Delta}$ 22'00	17.48491 AU	conjunction	3914 Dec 24 00:49	1° $\overline{\Delta}$ 18'48	0°-5'-26

minimum elong	3914 Dec 24 00:48	1°☾18'48	0°05'27	minimum elong	3922 Jan 23 05:11	2°≈11'54	0°27'55
behind sun begin	3914 Dec 23 18:27	1°☾17'50		max. Earth dist.	3922 Jan 23 13:47	2°≈13'12	20.25749 AU
behind sun end	3914 Dec 24 07:10	1°☾19'45		retrograde	3922 May 10 18:42	6°≈20'24	
max. Earth dist.	3914 Dec 23 23:22	1°☾18'36	19.81792 AU	opposition	3922 Jul 26 04:46	4°≈20'51	0°-32'-24
retrograde	3915 Apr 10 03:09	5°☾33'15		min. Earth dist.	3922 Jul 25 19:28	4°≈21'48	18.28897 AU
opposition	3915 Jun 24 09:07	3°☾32'54	0°-7'-55	direct	3922 Oct 11 07:22	2°≈20'12	
min. Earth dist.	3915 Jun 24 10:11	3°☾32'48	17.84852 AU				
direct	3915 Sep 09 15:06	1°☾29'54		conjunction	3923 Jan 27 16:11	6°≈29'04	0°-30'-31
				minimum elong	3923 Jan 27 16:11	6°≈29'04	0°30'31
conjunction	3915 Dec 28 17:42	5°☾48'57	0°-8'-57	max. Earth dist.	3923 Jan 28 03:03	6°≈30'41	20.32054 AU
minimum elong	3915 Dec 28 17:43	5°☾48'57	0°08'57	retrograde	3923 May 15 09:24	10°≈36'46	
behind sun begin	3915 Dec 28 12:03	5°☾48'06		opposition	3923 Jul 30 21:48	8°≈37'18	0°-35'-12
behind sun end	3915 Dec 28 23:22	5°☾49'48		min. Earth dist.	3923 Jul 30 10:11	8°≈38'29	18.35203 AU
max. Earth dist.	3915 Dec 28 16:47	5°☾48'49	19.87984 AU	direct	3923 Oct 16 00:44	6°≈37'00	
retrograde	3916 Apr 13 21:13	10°☾02'35					
opposition	3916 Jun 28 07:00	8°☾02'24	0°-11'-48	conjunction	3924 Feb 01 02:24	10°≈44'28	0°-32'-57
min. Earth dist.	3916 Jun 28 06:19	8°☾02'28	17.91105 AU	minimum elong	3924 Feb 01 02:23	10°≈44'28	0°32'58
direct	3916 Sep 13 12:51	5°☾59'46		max. Earth dist.	3924 Feb 01 14:25	10°≈46'16	20.38361 AU
				retrograde	3924 May 18 21:06	14°≈51'27	
conjunction	3917 Jan 01 09:49	10°☾17'25	0°-12'-24	opposition	3924 Aug 03 14:26	12°≈52'05	0°-37'-47
minimum elong	3917 Jan 01 09:48	10°☾17'25	0°12'25	min. Earth dist.	3924 Aug 03 01:59	12°≈53'21	18.41516 AU
behind sun begin	3917 Jan 01 05:26	10°☾16'46		direct	3924 Oct 19 15:06	10°≈52'08	
behind sun end	3917 Jan 01 14:11	10°☾18'04					
max. Earth dist.	3917 Jan 01 11:28	10°☾17'40	19.94270 AU	conjunction	3925 Feb 04 11:55	14°≈58'16	0°-35'-11
retrograde	3917 Apr 18 14:14	14°☾30'11		minimum elong	3925 Feb 04 11:55	14°≈58'16	0°35'12
opposition	3917 Jul 03 04:22	12°☾30'11	0°-15'-36		3925 Feb 04 23:32	15°≈	
min. Earth dist.	3917 Jul 03 02:16	12°☾30'24	17.97407 AU	max. Earth dist.	3925 Feb 05 01:58	15°≈00'22	20.44654 AU
direct	3917 Sep 18 10:10	10°☾27'55		retrograde	3925 May 23 10:53	19°≈04'33	
				opposition	3925 Aug 08 06:14	17°≈05'18	0°-40'-9
conjunction	3918 Jan 06 01:02	14°☾44'07	0°-15'-45	min. Earth dist.	3925 Aug 07 15:30	17°≈06'47	18.47770 AU
minimum elong	3918 Jan 06 01:02	14°☾44'07	0°15'45	direct	3925 Oct 24 07:10	15°≈05'44	
behind sun begin	3918 Jan 05 23:25	14°☾43'52					
behind sun end	3918 Jan 06 02:39	14°☾44'21		conjunction	3926 Feb 08 20:54	19°≈10'34	0°-37'-14
max. Earth dist.	3918 Jan 06 03:11	14°☾44'26	20.00585 AU	minimum elong	3926 Feb 08 20:54	19°≈10'34	0°37'14
retrograde	3918 Apr 23 06:54	18°☾56'01		max. Earth dist.	3926 Feb 09 11:59	19°≈12'49	20.50853 AU
opposition	3918 Jul 08 00:56	16°☾56'09	0°-19'-17	retrograde	3926 May 27 21:31	23°≈16'12	
min. Earth dist.	3918 Jul 07 21:32	16°☾56'30	18.03734 AU	opposition	3926 Aug 12 21:22	21°≈17'04	0°-42'-17
direct	3918 Sep 23 06:08	14°☾54'13		min. Earth dist.	3926 Aug 12 06:20	21°≈18'35	18.53916 AU
				direct	3926 Oct 28 19:25	19°≈17'53	
conjunction	3919 Jan 10 15:32	19°☾08'58	0°-19'00				
minimum elong	3919 Jan 10 15:32	19°☾08'58	0°19'01	conjunction	3927 Feb 13 05:23	23°≈21'29	0°-39'-4
max. Earth dist.	3919 Jan 10 19:59	19°☾09'38	20.06902 AU	minimum elong	3927 Feb 13 05:23	23°≈21'28	0°39'04
retrograde	3919 Apr 27 22:59	23°☾20'00		max. Earth dist.	3927 Feb 13 22:00	23°≈23'56	20.56919 AU
opposition	3919 Jul 12 20:55	21°☾20'14	0°-22'-49	retrograde	3927 Jun 01 09:59	27°≈26'29	
min. Earth dist.	3919 Jul 12 15:52	21°☾20'46	18.10029 AU	opposition	3927 Aug 17 11:57	25°≈27'29	0°-44'-11
direct	3919 Sep 28 02:01	19°☾18'39		min. Earth dist.	3927 Aug 16 18:50	25°≈29'13	18.59879 AU
				direct	3927 Nov 02 10:02	23°≈28'40	
conjunction	3920 Jan 15 04:54	23°☾31'54	0°-22'-7				
minimum elong	3920 Jan 15 04:54	23°☾31'54	0°22'08	conjunction	3928 Feb 17 13:13	27°≈31'04	0°-40'-41
max. Earth dist.	3920 Jan 15 10:04	23°☾32'41	20.13187 AU	minimum elong	3928 Feb 17 13:13	27°≈31'04	0°40'42
retrograde	3920 May 01 14:05	27°☾42'05		max. Earth dist.	3928 Feb 18 06:43	27°≈33'39	20.62760 AU
opposition	3920 Jul 16 16:19	25°☾42'23	0°-26'-12		3928 Apr 02 14:48	0°☿	
min. Earth dist.	3920 Jul 16 10:07	25°☾43'01	18.16316 AU	retrograde	3928 Jun 04 20:05	1°☿35'31	
direct	3920 Oct 01 20:16	23°☾41'06			3928 Aug 11 08:00	30°☿≈	
				min. Earth dist.	3928 Aug 20 09:03	29°≈38'20	18.65605 AU
conjunction	3921 Jan 18 17:33	27°☾52'53	0°-25'-5	opposition	3928 Aug 21 02:09	29°≈36'37	0°-45'-51
minimum elong	3921 Jan 18 17:33	27°☾52'53	0°25'06	direct	3928 Nov 05 21:00	27°≈38'09	
max. Earth dist.	3921 Jan 19 01:07	27°☾54'01	20.19469 AU		3929 Jan 22 22:56	0°☿	
	3921 Feb 24 07:39	0°≈					
retrograde	3921 May 06 05:25	2°≈02'12		conjunction	3929 Feb 20 20:47	1°☿39'24	0°-42'-5
opposition	3921 Jul 21 10:51	0°≈02'34	0°-29'-23	minimum elong	3929 Feb 20 20:47	1°☿39'24	0°42'07
min. Earth dist.	3921 Jul 21 02:34	0°≈03'25	18.22595 AU	max. Earth dist.	3929 Feb 21 15:21	1°☿42'08	20.68340 AU
	3921 Jul 22 12:00	30°☿☾		retrograde	3929 Jun 09 07:36	5°☿43'18	
direct	3921 Oct 06 15:02	28°☾01'36		opposition	3929 Aug 25 15:28	3°☿44'31	0°-47'-16
	3921 Dec 15 22:27	0°≈		min. Earth dist.	3929 Aug 24 20:38	3°☿46'24	18.71022 AU
				direct	3929 Nov 10 09:46	1°☿46'21	
conjunction	3922 Jan 23 05:11	2°≈11'54	0°-27'-53				

conjunction	3930 Feb 25 03:56	5° <del>✕</del> 46'32	0°-43'-16	conjunction	3938 Mar 29 01:26	8° <del>°</del> 04'44	0°-44'-32
minimum elong	3930 Feb 25 03:56	5° <del>✕</del> 46'32	0°43'17	minimum elong	3938 Mar 29 01:26	8° <del>°</del> 04'44	0°44'34
max. Earth dist.	3930 Feb 25 23:01	5° <del>✕</del> 49'20	20.73567 AU	max. Earth dist.	3938 Mar 30 00:03	8° <del>°</del> 08'00	21.00798 AU
retrograde	3930 Jun 13 17:07	9° <del>✕</del> 49'57		retrograde	3938 Jul 16 14:45	12° <del>°</del> 05'49	
min. Earth dist.	3930 Aug 29 10:06	7° <del>✕</del> 53'04	18.76065 AU	opposition	3938 Oct 02 16:10	10° <del>°</del> 06'53	0°-48'-46
opposition	3930 Aug 30 04:29	7° <del>✕</del> 51'13	0°-48'-27	min. Earth dist.	3938 Oct 01 19:08	10° <del>°</del> 08'59	19.01778 AU
direct	3930 Nov 14 19:38	5° <del>✕</del> 53'21		direct	3938 Dec 17 14:23	8° <del>°</del> 10'16	
conjunction	3931 Mar 01 10:42	9° <del>✕</del> 52'29	0°-44'-14	conjunction	3939 Apr 02 06:17	12° <del>°</del> 03'45	0°-43'-42
minimum elong	3931 Mar 01 10:42	9° <del>✕</del> 52'29	0°44'16	minimum elong	3939 Apr 02 06:17	12° <del>°</del> 03'45	0°43'43
max. Earth dist.	3931 Mar 02 06:23	9° <del>✕</del> 55'22	20.78400 AU	max. Earth dist.	3939 Apr 03 04:58	12° <del>°</del> 07'00	21.02583 AU
retrograde	3931 Jun 18 03:43	13° <del>✕</del> 55'27		retrograde	3939 Jul 21 00:11	16° <del>°</del> 04'49	
opposition	3931 Sep 03 16:47	11° <del>✕</del> 56'45	0°-49'-22	min. Earth dist.	3939 Oct 06 02:36	14° <del>°</del> 08'05	19.03373 AU
min. Earth dist.	3931 Sep 02 20:52	11° <del>✕</del> 58'45	18.80678 AU	opposition	3939 Oct 07 00:40	14° <del>°</del> 05'53	0°-47'-43
direct	3931 Nov 19 07:12	9° <del>✕</del> 59'07		direct	3939 Dec 21 20:47	12° <del>°</del> 09'23	
conjunction	3932 Mar 04 17:08	13° <del>✕</del> 57'17	0°-44'-58	conjunction	3940 Apr 05 11:20	16° <del>°</del> 02'34	0°-42'-39
minimum elong	3932 Mar 04 17:08	13° <del>✕</del> 57'17	0°44'58	minimum elong	3940 Apr 05 11:20	16° <del>°</del> 02'34	0°42'40
max. Earth dist.	3932 Mar 05 13:12	14° <del>✕</del> 00'12	20.82785 AU	max. Earth dist.	3940 Apr 06 10:09	16° <del>°</del> 05'51	21.03980 AU
retrograde	3932 Jun 21 12:29	17° <del>✕</del> 59'49		retrograde	3940 Jul 24 07:29	20° <del>°</del> 03'42	
min. Earth dist.	3932 Sep 06 09:29	16° <del>✕</del> 03'03	18.84849 AU	opposition	3940 Oct 10 09:00	18° <del>°</del> 04'45	0°-46'-26
opposition	3932 Sep 07 04:45	16° <del>✕</del> 01'07	0°-50'-2	min. Earth dist.	3940 Oct 09 12:04	18° <del>°</del> 06'51	19.04571 AU
direct	3932 Nov 22 15:57	14° <del>✕</del> 03'41		direct	3940 Dec 25 02:03	16° <del>°</del> 08'23	
conjunction	3933 Mar 08 23:10	18° <del>✕</del> 00'55	0°-45'-28	conjunction	3941 Apr 09 16:31	20° <del>°</del> 01'21	0°-41'-24
minimum elong	3933 Mar 08 23:11	18° <del>✕</del> 00'55	0°45'29	minimum elong	3941 Apr 09 16:31	20° <del>°</del> 01'21	0°41'25
max. Earth dist.	3933 Mar 09 19:41	18° <del>✕</del> 03'54	20.86740 AU	max. Earth dist.	3941 Apr 10 14:59	20° <del>°</del> 04'34	21.04976 AU
retrograde	3933 Jun 25 22:23	22° <del>✕</del> 03'04		retrograde	3941 Jul 28 17:26	22° <del>°</del> 02'36	
opposition	3933 Sep 11 15:53	20° <del>✕</del> 04'19	0°-50'-27	opposition	3941 Oct 14 16:59	22° <del>°</del> 03'38	0°-44'-57
min. Earth dist.	3933 Sep 10 19:14	20° <del>✕</del> 06'23	18.88582 AU	min. Earth dist.	3941 Oct 13 19:30	22° <del>°</del> 05'47	19.05338 AU
direct	3933 Nov 27 02:24	18° <del>✕</del> 07'02		direct	3941 Dec 29 07:53	20° <del>°</del> 07'21	
conjunction	3934 Mar 13 04:53	22° <del>✕</del> 03'26	0°-45'-44	conjunction	3942 Apr 13 21:56	24° <del>°</del> 00'13	0°-39'-57
minimum elong	3934 Mar 13 04:53	22° <del>✕</del> 03'26	0°45'45	minimum elong	3942 Apr 13 21:56	24° <del>°</del> 00'13	0°39'58
max. Earth dist.	3934 Mar 14 01:50	22° <del>✕</del> 06'28	20.90256 AU	max. Earth dist.	3942 Apr 14 20:08	24° <del>°</del> 03'24	21.05498 AU
retrograde	3934 Jun 30 05:58	26° <del>✕</del> 05'14		retrograde	3942 Aug 02 00:39	28° <del>°</del> 01'37	
min. Earth dist.	3934 Sep 15 06:35	24° <del>✕</del> 08'26	18.91909 AU	min. Earth dist.	3942 Oct 18 04:52	26° <del>°</del> 04'39	19.05615 AU
opposition	3934 Sep 16 02:29	24° <del>✕</del> 06'26	0°-50'-37	opposition	3942 Oct 19 00:52	26° <del>°</del> 02'38	0°-43'-14
direct	3934 Dec 01 09:50	22° <del>✕</del> 09'17		direct	3943 Jan 02 13:03	24° <del>°</del> 06'25	
conjunction	3935 Mar 17 10:19	26° <del>✕</del> 04'55	0°-45'-46	conjunction	3943 Apr 18 03:39	27° <del>°</del> 59'15	0°-38'-18
minimum elong	3935 Mar 17 10:19	26° <del>✕</del> 04'55	0°45'47	minimum elong	3943 Apr 18 03:39	27° <del>°</del> 59'15	0°38'20
max. Earth dist.	3935 Mar 18 07:43	26° <del>✕</del> 08'01	20.93404 AU	max. Earth dist.	3943 Apr 19 01:01	28° <del>°</del> 02'19	21.05531 AU
retrograde	3935 Jun 18 11:00	0° <del>°</del>		retrograde	3943 May 24 21:39	0° <del>°</del>	
opposition	3935 Jul 04 15:27	0° <del>°</del> 06'26		retrograde	3943 Aug 06 11:19	2° <del>°</del> 00'51	
min. Earth dist.	3935 Jul 20 23:25	30° <del>°</del>		opposition	3943 Oct 23 08:36	0° <del>°</del> 01'50	0°-41'-18
direct	3935 Sep 20 12:33	28° <del>✕</del> 07'35	0°-50'-31	min. Earth dist.	3943 Oct 22 12:26	0° <del>°</del> 03'51	19.05378 AU
min. Earth dist.	3935 Sep 19 15:11	28° <del>✕</del> 09'43	18.94880 AU	direct	3943 Oct 24 02:48	30° <del>°</del>	
direct	3935 Dec 05 18:55	26° <del>✕</del> 10'33		direct	3944 Jan 06 19:07	28° <del>°</del> 05'37	
conjunction	3936 Mar 19 01:20	0° <del>°</del>		conjunction	3944 Mar 16 07:28	0° <del>°</del>	
conjunction	3936 Mar 20 15:22	0° <del>°</del> 05'30	0°-45'-35	conjunction	3944 Apr 21 09:35	1° <del>°</del> 58'30	0°-36'-28
minimum elong	3936 Mar 20 15:22	0° <del>°</del> 05'30	0°45'36	minimum elong	3944 Apr 21 09:36	1° <del>°</del> 58'30	0°36'29
max. Earth dist.	3936 Mar 21 13:22	0° <del>°</del> 08'40	20.96195 AU	max. Earth dist.	3944 Apr 22 06:22	2° <del>°</del> 01'28	21.05009 AU
retrograde	3936 Jul 07 22:26	4° <del>°</del> 06'49		retrograde	3944 Aug 09 18:31	6° <del>°</del> 00'20	
opposition	3936 Sep 23 22:18	2° <del>°</del> 07'55	0°-50'-10	opposition	3944 Oct 26 16:22	4° <del>°</del> 01'13	0°-39'-11
min. Earth dist.	3936 Sep 23 01:36	2° <del>°</del> 09'59	18.97514 AU	min. Earth dist.	3944 Oct 25 21:55	4° <del>°</del> 03'05	19.04570 AU
direct	3936 Dec 09 01:16	0° <del>°</del> 11'02		direct	3945 Jan 09 23:59	2° <del>°</del> 04'59	
conjunction	3937 Mar 24 20:28	4° <del>°</del> 05'23	0°-45'-10	conjunction	3945 Apr 25 16:00	5° <del>°</del> 57'57	0°-34'-28
minimum elong	3937 Mar 24 20:28	4° <del>°</del> 05'23	0°45'10	minimum elong	3945 Apr 25 16:00	5° <del>°</del> 57'57	0°34'29
max. Earth dist.	3937 Mar 25 18:45	4° <del>°</del> 08'36	20.98670 AU	max. Earth dist.	3945 Apr 26 11:31	6° <del>°</del> 00'45	21.03929 AU
retrograde	3937 Jul 12 07:49	8° <del>°</del> 06'32		retrograde	3945 Aug 14 05:04	10° <del>°</del> 00'03	
min. Earth dist.	3937 Sep 27 09:22	6° <del>°</del> 09'48	18.99821 AU	opposition	3945 Oct 30 23:42	8° <del>°</del> 00'49	0°-36'-52
opposition	3937 Sep 28 07:17	6° <del>°</del> 07'37	0°-49'-35	min. Earth dist.	3945 Oct 30 05:27	8° <del>°</del> 02'39	19.03201 AU
direct	3937 Dec 13 08:47	4° <del>°</del> 10'52		direct	3946 Jan 14 06:48	6° <del>°</del> 04'28	

conjunction	3946 Apr 29 22:36	9°♄57'38	0°-32'-17	retrograde	3953 Sep 16 09:25	12°♄14'23	
minimum elong	3946 Apr 29 22:36	9°♄57'38	0°32'17	opposition	3953 Dec 02 11:28	10°♄13'55	0°-12'-42
max. Earth dist.	3946 Apr 30 17:24	10°♄00'19	21.02283 AU	min. Earth dist.	3953 Dec 02 01:01	10°♄14'59	18.77488 AU
retrograde	3946 Aug 18 12:22	14°♄00'01		direct	3954 Feb 15 07:14	8°♄16'03	
opposition	3946 Nov 04 07:12	12°♄00'37	0°-34'-21				
min. Earth dist.	3946 Nov 03 14:42	12°♄02'17	19.01292 AU	conjunction	3954 Jun 01 18:39	12°♄13'48	0°-9'-58
direct	3947 Jan 18 11:23	10°♄04'08		minimum elong	3954 Jun 01 18:39	12°♄13'49	0°10'00
				behind sun begin	3954 Jun 01 13:16	12°♄13'03	
conjunction	3947 May 04 05:21	13°♄57'31	0°-29'-56	behind sun end	3954 Jun 02 00:02	12°♄14'34	
minimum elong	3947 May 04 05:21	13°♄57'31	0°29'58	max. Earth dist.	3954 Jun 02 05:30	12°♄15'22	20.75245 AU
max. Earth dist.	3947 May 04 23:01	14°♄00'03	21.00146 AU	retrograde	3954 Sep 20 20:23	16°♄20'24	
	3947 May 22 14:28	15°♄		opposition	3954 Dec 06 19:47	14°♄19'51	0°-9'-11
retrograde	3947 Aug 22 22:25	18°♄00'15		min. Earth dist.	3954 Dec 06 11:02	14°♄20'45	18.72926 AU
opposition	3947 Nov 08 14:32	16°♄00'40	0°-31'-41	direct	3955 Feb 19 14:05	12°♄21'48	
min. Earth dist.	3947 Nov 07 22:12	16°♄02'19	18.98920 AU				
	3947 Dec 04 20:25	15°♄		conjunction	3955 Jun 06 05:54	16°♄20'33	0°-6'-46
direct	3948 Jan 22 18:42	14°♄04'00		minimum elong	3955 Jun 06 05:53	16°♄20'33	0°06'47
	3948 Mar 10 02:14	15°♄		behind sun begin	3955 Jun 05 23:39	16°♄19'40	
				behind sun end	3955 Jun 06 12:07	16°♄21'25	
conjunction	3948 May 07 12:37	17°♄57'44	0°-27'-26	max. Earth dist.	3955 Jun 06 14:42	16°♄21'48	20.70553 AU
minimum elong	3948 May 07 12:37	17°♄57'44	0°27'27	retrograde	3955 Sep 25 09:24	20°♄27'55	
max. Earth dist.	3948 May 08 05:44	18°♄00'11	20.97556 AU	opposition	3955 Dec 11 04:26	18°♄27'16	0°-5'-35
retrograde	3948 Aug 26 06:19	22°♄00'51		min. Earth dist.	3955 Dec 10 20:42	18°♄28'04	18.68078 AU
opposition	3948 Nov 11 21:48	20°♄01'04	0°-28'-51	direct	3956 Feb 23 22:10	16°♄29'00	
min. Earth dist.	3948 Nov 11 07:08	20°♄02'34	18.96134 AU				
direct	3949 Jan 25 23:32	18°♄04'13		conjunction	3956 Jun 09 18:14	20°♄28'49	0°-3'-30
				minimum elong	3956 Jun 09 18:14	20°♄28'49	0°03'31
conjunction	3949 May 11 20:17	21°♄58'22	0°-24'-48	behind sun begin	3956 Jun 09 11:35	20°♄27'53	
minimum elong	3949 May 11 20:17	21°♄58'23	0°24'49	behind sun end	3956 Jun 10 00:54	20°♄29'45	
max. Earth dist.	3949 May 12 12:08	22°♄00'38	20.94598 AU	max. Earth dist.	3956 Jun 10 02:04	20°♄29'56	20.65535 AU
retrograde	3949 Aug 30 16:28	26°♄01'55		retrograde	3956 Sep 28 21:01	24°♄36'57	
opposition	3949 Nov 16 05:02	24°♄01'58	0°-25'-51	opposition	3956 Dec 14 13:24	22°♄36'14	0°-1'-56
min. Earth dist.	3949 Nov 15 14:35	24°♄03'27	18.92996 AU	min. Earth dist.	3956 Dec 14 07:40	22°♄36'50	18.62887 AU
direct	3950 Jan 30 06:20	22°♄04'54		direct	3957 Feb 27 05:54	20°♄37'43	
conjunction	3950 May 16 04:20	25°♄59'36	0°-22'-2	conjunction	3957 Jun 14 07:22	24°♄38'39	0°00'-7
minimum elong	3950 May 16 04:20	25°♄59'36	0°22'04	minimum elong	3957 Jun 14 07:21	24°♄38'39	0°00'09
max. Earth dist.	3950 May 16 19:38	26°♄01'47	20.91286 AU	behind sun begin	3957 Jun 14 00:44	24°♄37'43	
	3950 Aug 22 20:35	0°♄		behind sun end	3957 Jun 14 13:58	24°♄39'35	
retrograde	3950 Sep 04 01:10	0°♄03'38		max. Earth dist.	3957 Jun 14 12:32	24°♄39'22	20.60180 AU
	3950 Sep 16 06:06	30°♄		asc. node	3957 Jun 29 00:31	25°♄29'38	
opposition	3950 Nov 20 12:26	28°♄03'32	0°-22'-44	retrograde	3957 Oct 03 11:11	28°♄47'36	
min. Earth dist.	3950 Nov 19 23:30	28°♄04'51	18.89529 AU	opposition	3957 Dec 18 22:54	26°♄46'45	0°01'44
direct	3951 Feb 03 11:52	26°♄06'16		min. Earth dist.	3957 Dec 18 18:33	26°♄47'12	18.57355 AU
				direct	3958 Mar 03 15:30	24°♄47'55	
conjunction	3951 May 20 12:55	0°♄01'34	0°-19'-9				
minimum elong	3951 May 20 12:55	0°♄01'34	0°19'10	conjunction	3958 Jun 18 21:10	28°♄50'02	0°03'16
	3951 May 20 01:55	0°♄		minimum elong	3958 Jun 18 21:12	28°♄50'02	0°03'17
max. Earth dist.	3951 May 21 02:49	0°♄03'34	20.87689 AU	behind sun begin	3958 Jun 18 14:30	28°♄49'06	
retrograde	3951 Sep 08 11:54	4°♄06'11		behind sun end	3958 Jun 19 03:53	28°♄50'59	
opposition	3951 Nov 24 19:54	2°♄05'55	0°-19'-30	max. Earth dist.	3958 Jun 19 01:17	28°♄50'36	20.54465 AU
min. Earth dist.	3951 Nov 24 07:16	2°♄07'13	18.85790 AU		3958 Jul 09 03:31	0°♄	
direct	3952 Feb 07 18:11	0°♄08'27		retrograde	3958 Oct 07 23:30	2°♄59'47	
				opposition	3958 Dec 23 08:52	0°♄58'47	0°05'26
conjunction	3952 May 23 22:08	4°♄04'29	0°-16'-11	min. Earth dist.	3958 Dec 23 06:20	0°♄59'03	18.51472 AU
minimum elong	3952 May 23 22:08	4°♄04'29	0°16'12		3959 Jan 16 20:59	30°♄	
max. Earth dist.	3952 May 24 11:26	4°♄06'23	20.83806 AU	direct	3959 Mar 08 00:43	28°♄59'37	
retrograde	3952 Sep 11 21:48	8°♄09'42			3959 Apr 25 19:40	0°♄	
opposition	3952 Nov 28 03:39	6°♄09'19	0°-16'-9				
min. Earth dist.	3952 Nov 27 16:35	6°♄10'28	18.81768 AU	conjunction	3959 Jun 23 11:49	3°♄02'56	0°06'36
direct	3953 Feb 11 00:28	4°♄11'40		minimum elong	3959 Jun 23 11:49	3°♄02'56	0°06'35
				behind sun begin	3959 Jun 23 05:31	3°♄02'03	
conjunction	3953 May 28 08:02	8°♄08'30	0°-13'-7	behind sun end	3959 Jun 23 18:07	3°♄03'50	
minimum elong	3953 May 28 08:02	8°♄08'30	0°13'07	max. Earth dist.	3959 Jun 23 13:07	3°♄03'06	20.48446 AU
behind sun begin	3953 May 28 04:07	8°♄07'57		retrograde	3959 Oct 12 14:08	7°♄13'29	
behind sun end	3953 May 28 11:56	8°♄09'03		opposition	3959 Dec 27 19:08	5°♄12'19	0°09'07
max. Earth dist.	3953 May 28 19:35	8°♄10'10	20.79665 AU	min. Earth dist.	3959 Dec 27 18:08	5°♄12'25	18.45317 AU



direct	3960 Mar 11 11:20	3°☾12'45		max. Earth dist.	3967 Jul 29 02:16	7°♊41'28	19.96927 AU
				retrograde	3967 Nov 17 03:50	12°♊00'22	
conjunction	3960 Jun 27 03:22	7°☾17'21 0°09'55		opposition	3968 Jan 31 00:09	9°♊58'01 0°35'54	
minimum elong	3960 Jun 27 03:22	7°☾17'20 0°09'55		min. Earth dist.	3968 Jan 31 10:06	9°♊56'57	17.93891 AU
behind sun begin	3960 Jun 26 21:56	7°☾16'34		direct	3968 Apr 14 18:20	7°♊55'23	
behind sun end	3960 Jun 27 08:47	7°☾18'07					
max. Earth dist.	3960 Jun 27 03:45	7°☾17'24 20.42166 AU		conjunction	3968 Aug 02 12:08	12°♊11'21 0°33'33	
retrograde	3960 Oct 16 04:00	11°☾28'41		minimum elong	3968 Aug 02 12:07	12°♊11'21 0°33'33	
opposition	3960 Dec 31 05:52	9°☾27'19 0°12'47		max. Earth dist.	3968 Aug 02 00:06	12°♊09'33 19.90897 AU	
min. Earth dist.	3960 Dec 31 06:30	9°☾27'15 18.38931 AU			3968 Sep 22 03:05	15°♊	
direct	3961 Mar 15 21:57	7°☾27'22		retrograde	3968 Nov 20 23:45	16°♊29'20	
					3969 Jan 21 17:31	15°♊♊	
conjunction	3961 Jul 01 19:29	11°☾33'14 0°13'11		opposition	3969 Feb 03 15:41	14°♊26'57 0°38'36	
minimum elong	3961 Jul 01 19:29	11°☾33'14 0°13'11		min. Earth dist.	3969 Feb 04 02:17	14°♊25'49 17.87931 AU	
behind sun begin	3961 Jul 01 15:39	11°☾32'41		direct	3969 Apr 19 11:03	12°♊24'02	
behind sun end	3961 Jul 01 23:20	11°☾33'47			3969 Jul 09 17:38	15°♊	
max. Earth dist.	3961 Jul 01 17:05	11°☾32'54 20.35705 AU					
retrograde	3961 Oct 20 19:15	15°☾45'24		conjunction	3969 Aug 07 10:59	16°♊41'29 0°35'52	
opposition	3962 Jan 04 16:59	13°☾43'51 0°16'25		minimum elong	3969 Aug 07 10:59	16°♊41'29 0°35'51	
min. Earth dist.	3962 Jan 04 19:09	13°☾43'37 18.32412 AU		max. Earth dist.	3969 Aug 06 20:22	16°♊39'17 19.85001 AU	
direct	3962 Mar 20 09:20	11°☾43'28		retrograde	3969 Nov 25 19:28	21°♊00'17	
				opposition	3970 Feb 08 08:06	18°♊57'52 0°41'04	
conjunction	3962 Jul 06 12:35	15°☾50'41 0°16'25		min. Earth dist.	3970 Feb 08 20:48	18°♊56'30 17.82114 AU	
minimum elong	3962 Jul 06 12:34	15°☾50'41 0°16'24		direct	3970 Apr 24 04:00	16°♊54'38	
max. Earth dist.	3962 Jul 06 09:34	15°☾50'15 20.29136 AU					
retrograde	3962 Oct 25 10:50	20°☾03'39		conjunction	3970 Aug 12 10:51	21°♊13'35 0°37'58	
opposition	3963 Jan 09 04:40	18°☾01'55 0°19'58		minimum elong	3970 Aug 12 10:51	21°♊13'35 0°37'59	
min. Earth dist.	3963 Jan 09 08:05	18°☾01'33 18.25817 AU		max. Earth dist.	3970 Aug 11 19:34	21°♊11'16 19.79244 AU	
direct	3963 Mar 24 21:09	16°☾01'07		retrograde	3970 Nov 30 16:45	25°♊33'07	
				opposition	3971 Feb 13 01:07	23°♊30'40 0°43'19	
conjunction	3963 Jul 11 06:13	20°☾09'42 0°19'34		min. Earth dist.	3971 Feb 13 14:19	23°♊29'14 17.76421 AU	
minimum elong	3963 Jul 11 06:13	20°☾09'42 0°19'34		direct	3971 Apr 28 23:10	21°♊27'07	
max. Earth dist.	3963 Jul 11 00:32	20°☾08'53 20.22538 AU					
retrograde	3963 Oct 30 03:22	24°☾23'32		conjunction	3971 Aug 17 11:22	25°♊47'29 0°39'52	
opposition	3964 Jan 13 16:56	22°☾21'36 0°23'25		minimum elong	3971 Aug 17 11:22	25°♊47'29 0°39'52	
min. Earth dist.	3964 Jan 13 21:53	22°☾21'04 18.19231 AU		max. Earth dist.	3971 Aug 16 17:41	25°♊44'48 19.73612 AU	
direct	3964 Mar 28 09:35	20°☾20'23			3971 Nov 18 16:46	0°♊♊	
				retrograde	3971 Dec 05 13:06	0°♊07'44	
conjunction	3964 Jul 15 01:02	24°☾30'24 0°22'37			3971 Dec 22 11:52	30°♊♊	
minimum elong	3964 Jul 15 01:01	24°☾30'24 0°22'37		opposition	3972 Feb 17 19:03	28°♊05'13 0°45'18	
max. Earth dist.	3964 Jul 14 18:53	24°☾29'30 20.15963 AU		min. Earth dist.	3972 Feb 18 10:27	28°♊03'33 17.70872 AU	
retrograde	3964 Nov 02 20:31	28°☾45'01		direct	3972 May 02 17:52	26°♊01'20	
opposition	3965 Jan 17 05:39	26°☾42'58 0°26'46			3972 Aug 15 05:22	0°♊♊	
min. Earth dist.	3965 Jan 17 11:35	26°☾42'20 18.12690 AU					
direct	3965 Apr 01 22:35	24°☾41'21		conjunction	3972 Aug 21 12:40	0°♊23'06 0°41'31	
				minimum elong	3972 Aug 21 12:40	0°♊23'06 0°41'31	
conjunction	3965 Jul 19 20:27	28°☾52'49 0°25'34		max. Earth dist.	3972 Aug 20 18:07	0°♊20'16 19.68143 AU	
minimum elong	3965 Jul 19 20:27	28°☾52'49 0°25'34		retrograde	3972 Dec 09 11:14	4°♊43'58	
max. Earth dist.	3965 Jul 19 11:39	28°☾51'30 20.09475 AU		opposition	3973 Feb 21 13:26	2°♊41'24 0°47'01	
	3965 Aug 07 20:31	0°♊		min. Earth dist.	3973 Feb 22 05:05	2°♊39'42 17.65497 AU	
retrograde	3965 Nov 07 14:21	3°♊08'18		direct	3973 May 07 15:27	0°♊37'12	
opposition	3966 Jan 21 19:12	1°♊06'06 0°29'58					
min. Earth dist.	3966 Jan 22 02:40	1°♊05'18 18.06273 AU		conjunction	3973 Aug 26 14:27	5°♊00'16 0°42'54	
	3966 Feb 17 23:23	30°♊☾		minimum elong	3973 Aug 26 14:27	5°♊00'16 0°42'54	
direct	3966 Apr 06 12:28	29°☾04'06		max. Earth dist.	3973 Aug 25 18:11	4°♊57'10 19.62875 AU	
	3966 May 23 02:53	0°♊		retrograde	3973 Dec 14 08:00	9°♊21'43	
				opposition	3974 Feb 26 08:42	7°♊19'04 0°48'25	
conjunction	3966 Jul 24 16:43	3°♊17'03 0°28'23		min. Earth dist.	3974 Feb 27 02:20	7°♊17'09 17.60369 AU	
minimum elong	3966 Jul 24 16:43	3°♊17'03 0°28'22		direct	3974 May 12 11:43	5°♊14'32	
max. Earth dist.	3966 Jul 24 07:43	3°♊15'42 20.03121 AU					
retrograde	3966 Nov 12 08:51	7°♊33'22		conjunction	3974 Aug 31 16:34	9°♊38'51 0°44'01	
opposition	3967 Jan 26 09:21	5°♊31'05 0°33'01		minimum elong	3974 Aug 31 16:34	9°♊38'51 0°44'01	
min. Earth dist.	3967 Jan 26 17:27	5°♊30'13 17.99994 AU		max. Earth dist.	3974 Aug 30 19:29	9°♊35'36 19.57893 AU	
direct	3967 Apr 11 02:56	3°♊28'46		retrograde	3974 Dec 19 07:04	14°♊00'49	
				opposition	3975 Mar 03 04:24	11°♊58'06 0°49'31	
conjunction	3967 Jul 29 13:52	7°♊43'12 0°31'03		min. Earth dist.	3975 Mar 03 21:54	11°♊56'11 17.55544 AU	
minimum elong	3967 Jul 29 13:52	7°♊43'12 0°31'02		direct	3975 May 17 11:23	9°♊53'15	

conjunction	3975 Sep 05 19:17	14° $\mathring{M}$ 18'43	0°44'51	conjunction	3983 Oct 14 23:26	22° $\mathring{L}$ 11'02	0°40'36
minimum elong	3975 Sep 05 19:17	14° $\mathring{M}$ 18'43	0°44'51	minimum elong	3983 Oct 14 23:26	22° $\mathring{L}$ 11'02	0°40'37
max. Earth dist.	3975 Sep 04 21:21	14° $\mathring{M}$ 15'20	19.53236 AU	max. Earth dist.	3983 Oct 14 01:48	22° $\mathring{L}$ 07'38	19.34245 AU
retrograde	3975 Dec 24 04:23	18° $\mathring{M}$ 41'08		retrograde	3984 Jan 31 03:28	26° $\mathring{L}$ 34'38	
opposition	3976 Mar 07 00:44	16° $\mathring{M}$ 38'22	0°50'18	opposition	3984 Apr 13 14:53	24° $\mathring{L}$ 32'18	0°44'18
min. Earth dist.	3976 Mar 07 19:57	16° $\mathring{M}$ 36'16	17.51088 AU	min. Earth dist.	3984 Apr 14 09:56	24° $\mathring{L}$ 30'13	17.34214 AU
direct	3976 May 21 08:56	14° $\mathring{M}$ 33'12		direct	3984 Jun 28 18:03	22° $\mathring{L}$ 26'19	
				max. Earth dist.	3984 Oct 18 04:34	26° $\mathring{L}$ 54'05	19.34229 AU
conjunction	3976 Sep 09 22:16	18° $\mathring{M}$ 59'44	0°45'23				
minimum elong	3976 Sep 09 22:16	18° $\mathring{M}$ 59'44	0°45'23	conjunction	3984 Oct 19 02:54	26° $\mathring{L}$ 57'36	0°38'45
max. Earth dist.	3976 Sep 08 23:26	18° $\mathring{M}$ 56'13	19.48991 AU	minimum elong	3984 Oct 19 02:54	26° $\mathring{L}$ 57'36	0°38'44
retrograde	3976 Dec 28 04:20	23° $\mathring{M}$ 22'32			3984 Dec 11 03:45	0° $\mathring{M}$	
opposition	3977 Mar 11 21:38	21° $\mathring{M}$ 19'43	0°50'44	retrograde	3985 Feb 04 02:33	1° $\mathring{M}$ 21'02	
min. Earth dist.	3977 Mar 12 16:24	21° $\mathring{M}$ 17'40	17.47070 AU		3985 Apr 02 12:58	30° $\mathring{R}$ $\mathring{L}$	
direct	3977 May 26 09:35	19° $\mathring{M}$ 14'17		opposition	3985 Apr 18 15:42	29° $\mathring{L}$ 18'47	0°42'04
max. Earth dist.	3977 Sep 14 02:48	23° $\mathring{M}$ 38'18	19.45203 AU	min. Earth dist.	3985 Apr 19 10:35	29° $\mathring{L}$ 16'44	17.34430 AU
				direct	3985 Jul 03 21:15	27° $\mathring{L}$ 12'49	
conjunction	3977 Sep 15 01:25	23° $\mathring{M}$ 41'48	0°45'37		3985 Sep 25 23:03	0° $\mathring{M}$	
minimum elong	3977 Sep 15 01:25	23° $\mathring{M}$ 41'48	0°45'37	max. Earth dist.	3985 Oct 23 09:09	1° $\mathring{M}$ 40'49	19.34663 AU
retrograde	3978 Jan 02 02:58	28° $\mathring{M}$ 04'55					
opposition	3978 Mar 16 19:15	26° $\mathring{M}$ 02'04	0°50'50	conjunction	3985 Oct 24 06:02	1° $\mathring{M}$ 44'06	0°36'37
min. Earth dist.	3978 Mar 17 15:08	25° $\mathring{M}$ 59'53	17.43547 AU	minimum elong	3985 Oct 24 06:02	1° $\mathring{M}$ 44'06	0°36'37
direct	3978 May 31 08:23	23° $\mathring{M}$ 56'24		retrograde	3986 Feb 09 02:51	6° $\mathring{M}$ 07'15	
max. Earth dist.	3978 Sep 19 05:17	28° $\mathring{M}$ 21'08	19.41956 AU	opposition	3986 Apr 23 16:43	4° $\mathring{M}$ 05'08	0°39'33
				min. Earth dist.	3986 Apr 24 10:50	4° $\mathring{M}$ 03'10	17.35069 AU
conjunction	3978 Sep 20 04:46	28° $\mathring{M}$ 24'47	0°45'32	direct	3986 Jul 09 01:53	1° $\mathring{M}$ 59'12	
minimum elong	3978 Sep 20 04:46	28° $\mathring{M}$ 24'47	0°45'33	max. Earth dist.	3986 Oct 28 11:46	6° $\mathring{M}$ 27'01	19.35522 AU
	3978 Oct 16 05:31	0° $\mathring{L}$					
retrograde	3979 Jan 07 03:18	2° $\mathring{L}$ 48'09		conjunction	3986 Oct 29 08:50	6° $\mathring{M}$ 30'20	0°34'14
opposition	3979 Mar 21 17:08	0° $\mathring{L}$ 45'19	0°50'36	minimum elong	3986 Oct 29 08:50	6° $\mathring{M}$ 30'20	0°34'13
min. Earth dist.	3979 Mar 22 12:20	0° $\mathring{L}$ 43'13	17.40585 AU	retrograde	3987 Feb 14 01:35	10° $\mathring{M}$ 53'08	
	3979 Apr 08 08:37	30° $\mathring{R}$ $\mathring{M}$		opposition	3987 Apr 28 17:46	8° $\mathring{M}$ 51'05	0°36'45
direct	3979 Jun 05 09:03	28° $\mathring{M}$ 39'28		min. Earth dist.	3987 Apr 29 11:53	8° $\mathring{M}$ 49'08	17.36151 AU
	3979 Jul 31 15:15	0° $\mathring{L}$		direct	3987 Jul 14 04:49	6° $\mathring{M}$ 45'12	
max. Earth dist.	3979 Sep 24 09:54	3° $\mathring{L}$ 05'08	19.39276 AU				
				conjunction	3987 Nov 03 11:15	11° $\mathring{M}$ 16'04	0°31'37
conjunction	3979 Sep 25 08:31	3° $\mathring{L}$ 08'39	0°45'09	minimum elong	3987 Nov 03 11:15	11° $\mathring{M}$ 16'04	0°31'37
minimum elong	3979 Sep 25 08:31	3° $\mathring{L}$ 08'39	0°45'09	max. Earth dist.	3987 Nov 02 15:30	11° $\mathring{M}$ 12'57	19.36828 AU
retrograde	3980 Jan 12 03:06	7° $\mathring{L}$ 32'12			3988 Jan 12 20:03	15° $\mathring{M}$	
opposition	3980 Mar 25 15:50	5° $\mathring{L}$ 29'24	0°50'00	retrograde	3988 Feb 19 01:47	15° $\mathring{M}$ 38'25	
min. Earth dist.	3980 Mar 26 11:42	5° $\mathring{L}$ 27'14	17.38198 AU		3988 Mar 28 07:28	15° $\mathring{R}$ $\mathring{M}$	
direct	3980 Jun 09 09:01	3° $\mathring{L}$ 23'27		opposition	3988 May 02 18:58	13° $\mathring{M}$ 36'28	0°33'43
				min. Earth dist.	3988 May 03 11:43	13° $\mathring{M}$ 34'40	17.37663 AU
conjunction	3980 Sep 29 12:07	7° $\mathring{L}$ 53'18	0°44'28	direct	3988 Jul 18 09:29	11° $\mathring{M}$ 30'39	
minimum elong	3980 Sep 29 12:07	7° $\mathring{L}$ 53'18	0°44'29		3988 Oct 22 05:35	15° $\mathring{M}$	
max. Earth dist.	3980 Sep 28 12:38	7° $\mathring{L}$ 49'37	19.37191 AU				
retrograde	3981 Jan 16 03:21	12° $\mathring{L}$ 16'59		conjunction	3988 Nov 07 12:53	16° $\mathring{M}$ 01'04	0°28'47
opposition	3981 Mar 30 14:52	10° $\mathring{L}$ 14'17	0°49'04	minimum elong	3988 Nov 07 12:53	16° $\mathring{M}$ 01'04	0°28'47
min. Earth dist.	3981 Mar 31 10:04	10° $\mathring{L}$ 12'11	17.36407 AU	max. Earth dist.	3988 Nov 06 17:51	15° $\mathring{M}$ 58'05	19.38569 AU
direct	3981 Jun 14 10:12	8° $\mathring{L}$ 08'16		retrograde	3989 Feb 22 23:57	20° $\mathring{M}$ 22'55	
				opposition	3989 May 07 20:16	18° $\mathring{M}$ 21'03	0°30'26
conjunction	3981 Oct 04 15:59	12° $\mathring{L}$ 38'41	0°43'29	min. Earth dist.	3989 May 08 12:52	18° $\mathring{M}$ 19'16	17.39642 AU
minimum elong	3981 Oct 04 15:59	12° $\mathring{L}$ 38'41	0°43'29	direct	3989 Jul 23 11:58	16° $\mathring{M}$ 15'18	
max. Earth dist.	3981 Oct 03 17:52	12° $\mathring{L}$ 35'13	19.35683 AU				
retrograde	3982 Jan 21 03:41	17° $\mathring{L}$ 02'25		conjunction	3989 Nov 12 13:55	20° $\mathring{M}$ 45'10	0°25'45
opposition	3982 Apr 04 14:29	14° $\mathring{L}$ 59'50	0°47'49	minimum elong	3989 Nov 12 13:55	20° $\mathring{M}$ 45'10	0°25'45
min. Earth dist.	3982 Apr 05 09:58	14° $\mathring{L}$ 57'42	17.35172 AU	max. Earth dist.	3989 Nov 11 20:14	20° $\mathring{M}$ 42'23	19.40795 AU
direct	3982 Jun 19 11:57	12° $\mathring{L}$ 53'48		retrograde	3990 Feb 27 23:38	25° $\mathring{M}$ 06'26	
				opposition	3990 May 12 21:13	23° $\mathring{M}$ 04'38	0°26'58
conjunction	3982 Oct 09 19:36	17° $\mathring{L}$ 24'39	0°42'11	min. Earth dist.	3990 May 13 11:49	23° $\mathring{M}$ 03'04	17.42100 AU
minimum elong	3982 Oct 09 19:36	17° $\mathring{L}$ 24'39	0°42'11	direct	3990 Jul 28 16:14	20° $\mathring{M}$ 59'00	
max. Earth dist.	3982 Oct 08 20:35	17° $\mathring{L}$ 21'02	19.34718 AU				
retrograde	3983 Jan 26 03:09	21° $\mathring{L}$ 48'23		conjunction	3990 Nov 17 14:13	25° $\mathring{M}$ 28'10	0°22'34
opposition	3983 Apr 09 14:29	19° $\mathring{L}$ 45'54	0°46'13	minimum elong	3990 Nov 17 14:13	25° $\mathring{M}$ 28'10	0°22'35
min. Earth dist.	3983 Apr 10 09:38	19° $\mathring{L}$ 43'49	17.34463 AU	max. Earth dist.	3990 Nov 16 22:07	25° $\mathring{M}$ 25'39	19.43505 AU
direct	3983 Jun 24 14:17	17° $\mathring{L}$ 39'53		retrograde	3991 Mar 04 20:49	29° $\mathring{M}$ 48'48	
				opposition	3991 May 17 22:15	27° $\mathring{M}$ 47'06	0°23'20

min. Earth dist.	3991 May 18 12:32	27° $\mathbb{M}$ 45'34	17.45069 AU	max. Earth dist.	3997 Dec 19 13:25	27° $\mathbb{Z}$ 53'03	19.76071 AU
direct	3991 Aug 02 17:41	25° $\mathbb{M}$ 41'37			3998 Jan 24 03:15	0° $\mathbb{Z}$	
	3991 Nov 19 22:08	0° $\mathbb{Z}$		retrograde	3998 Apr 05 21:17	2° $\mathbb{Z}$ 09'06	
conjunction	3991 Nov 22 13:40	0° $\mathbb{Z}$ 09'59	0°19'15	opposition	3998 Jun 19 21:29	0° $\mathbb{Z}$ 08'40	0°-4'-27
minimum elong	3991 Nov 22 13:40	0° $\mathbb{Z}$ 09'59	0°19'14	min. Earth dist.	3998 Jun 19 23:53	0° $\mathbb{Z}$ 08'25	17.79018 AU
max. Earth dist.	3991 Nov 21 22:51	0° $\mathbb{Z}$ 07'40	19.46743 AU	direct	3998 Jun 23 08:27	30° $\mathbb{R}$ $\mathbb{Z}$	
retrograde	3992 Mar 08 20:06	4° $\mathbb{Z}$ 29'57			3998 Sep 05 02:51	28° $\mathbb{Z}$ 05'23	
opposition	3992 May 21 22:57	2° $\mathbb{Z}$ 28'22	0°19'33		3998 Nov 12 18:43	0° $\mathbb{Z}$	
min. Earth dist.	3992 May 22 10:40	2° $\mathbb{Z}$ 27'06	17.48565 AU	conjunction	3998 Dec 24 11:52	2° $\mathbb{Z}$ 25'55	0°-5'-53
direct	3992 Aug 06 21:19	0° $\mathbb{Z}$ 23'03		minimum elong	3998 Dec 24 11:52	2° $\mathbb{Z}$ 25'55	0°05'53
				behind sun begin	3998 Dec 24 05:34	2° $\mathbb{Z}$ 24'58	
conjunction	3992 Nov 26 12:26	4° $\mathbb{Z}$ 50'33	0°15'49	behind sun end	3998 Dec 24 18:10	2° $\mathbb{Z}$ 26'52	
minimum elong	3992 Nov 26 12:26	4° $\mathbb{Z}$ 50'33	0°15'49	max. Earth dist.	3998 Dec 24 10:05	2° $\mathbb{Z}$ 25'41	19.82032 AU
behind sun begin	3992 Nov 26 11:11	4° $\mathbb{Z}$ 50'21		retrograde	3999 Apr 10 14:20	6° $\mathbb{Z}$ 40'28	
behind sun end	3992 Nov 26 13:41	4° $\mathbb{Z}$ 50'44		opposition	3999 Jun 24 19:58	4° $\mathbb{Z}$ 40'12	0°-8'-26
max. Earth dist.	3992 Nov 25 23:57	4° $\mathbb{Z}$ 48'36	19.50510 AU	min. Earth dist.	3999 Jun 24 21:28	4° $\mathbb{Z}$ 40'03	17.85041 AU
retrograde	3993 Mar 13 16:19	9° $\mathbb{Z}$ 09'49		direct	3999 Sep 10 01:43	2° $\mathbb{Z}$ 37'17	
opposition	3993 May 26 23:37	7° $\mathbb{Z}$ 08'22	0°15'40				
min. Earth dist.	3993 May 27 10:40	7° $\mathbb{Z}$ 07'12	17.52603 AU	conjunction	3999 Dec 29 04:47	6° $\mathbb{Z}$ 56'25	0°-9'-25
direct	3993 Aug 11 21:52	5° $\mathbb{Z}$ 03'20		minimum elong	3999 Dec 29 04:46	6° $\mathbb{Z}$ 56'25	0°09'26
				behind sun begin	3999 Dec 28 23:15	6° $\mathbb{Z}$ 55'35	
conjunction	3993 Dec 01 10:10	9° $\mathbb{Z}$ 29'50	0°12'17	behind sun end	3999 Dec 29 10:18	6° $\mathbb{Z}$ 57'15	
minimum elong	3993 Dec 01 10:10	9° $\mathbb{Z}$ 29'50	0°12'18	max. Earth dist.	3999 Dec 29 03:27	6° $\mathbb{Z}$ 56'14	19.88112 AU
behind sun begin	3993 Dec 01 05:45	9° $\mathbb{Z}$ 29'10		retrograde	4000 Apr 14 08:37	11° $\mathbb{Z}$ 10'06	
behind sun end	3993 Dec 01 14:36	9° $\mathbb{Z}$ 30'31		opposition	4000 Jun 28 17:52	9° $\mathbb{Z}$ 10'00	0°-12'-20
max. Earth dist.	3993 Nov 30 22:50	9° $\mathbb{Z}$ 28'05	19.54818 AU	min. Earth dist.	4000 Jun 28 17:28	9° $\mathbb{Z}$ 10'02	17.91170 AU
retrograde	3994 Mar 18 14:52	13° $\mathbb{Z}$ 48'24		direct	4000 Sep 13 23:25	7° $\mathbb{Z}$ 07'24	
opposition	3994 May 31 23:48	11° $\mathbb{Z}$ 47'08	0°11'42				
min. Earth dist.	3994 Jun 01 08:10	11° $\mathbb{Z}$ 46'14	17.57145 AU	conjunction	4001 Jan 01 21:02	11° $\mathbb{Z}$ 25'07	0°-12'-52
direct	3994 Aug 17 00:37	9° $\mathbb{Z}$ 42'24		minimum elong	4001 Jan 01 21:03	11° $\mathbb{Z}$ 25'07	0°12'52
				behind sun begin	4001 Jan 01 16:54	11° $\mathbb{Z}$ 24'30	
conjunction	3994 Dec 06 07:24	14° $\mathbb{Z}$ 07'52	0°08'43	behind sun end	4001 Jan 02 01:11	11° $\mathbb{Z}$ 25'44	
minimum elong	3994 Dec 06 07:24	14° $\mathbb{Z}$ 07'52	0°08'43	max. Earth dist.	4001 Jan 01 22:18	11° $\mathbb{Z}$ 25'18	19.94268 AU
behind sun begin	3994 Dec 06 01:39	14° $\mathbb{Z}$ 06'59		retrograde	4001 Apr 19 01:11	15° $\mathbb{Z}$ 37'54	
behind sun end	3994 Dec 06 13:09	14° $\mathbb{Z}$ 08'44		opposition	4001 Jul 03 15:09	13° $\mathbb{Z}$ 37'55	0°-16'-8
max. Earth dist.	3994 Dec 05 22:44	14° $\mathbb{Z}$ 06'32	19.59592 AU	min. Earth dist.	4001 Jul 03 13:33	13° $\mathbb{Z}$ 38'05	17.97343 AU
retrograde	3995 Mar 23 10:03	18° $\mathbb{Z}$ 25'39		direct	4001 Sep 18 21:13	11° $\mathbb{Z}$ 35'39	
opposition	3995 Jun 05 23:44	16° $\mathbb{Z}$ 24'37	0°07'40				
min. Earth dist.	3995 Jun 06 07:30	16° $\mathbb{Z}$ 23'47	17.62127 AU	conjunction	4002 Jan 06 12:12	15° $\mathbb{Z}$ 51'53	0°-16'-14
direct	3995 Aug 22 00:45	14° $\mathbb{Z}$ 20'14		minimum elong	4002 Jan 06 12:12	15° $\mathbb{Z}$ 51'53	0°16'15
				max. Earth dist.	4002 Jan 06 13:56	15° $\mathbb{Z}$ 52'08	20.00459 AU
conjunction	3995 Dec 11 03:42	18° $\mathbb{Z}$ 44'34	0°05'06	retrograde	4002 Apr 23 17:57	20° $\mathbb{Z}$ 03'47	
minimum elong	3995 Dec 11 03:41	18° $\mathbb{Z}$ 44'34	0°05'07	opposition	4002 Jul 08 11:45	18° $\mathbb{Z}$ 03'53	0°-19'-49
behind sun begin	3995 Dec 10 21:16	18° $\mathbb{Z}$ 43'36		min. Earth dist.	4002 Jul 08 08:36	18° $\mathbb{Z}$ 04'12	18.03550 AU
behind sun end	3995 Dec 11 10:06	18° $\mathbb{Z}$ 45'33		direct	4002 Sep 23 16:38	16° $\mathbb{Z}$ 01'54	
max. Earth dist.	3995 Dec 10 19:50	18° $\mathbb{Z}$ 43'22	19.64780 AU				
retrograde	3996 Mar 27 07:26	23° $\mathbb{Z}$ 01'36		conjunction	4003 Jan 11 02:38	20° $\mathbb{Z}$ 16'39	0°-19'-29
opposition	3996 Jun 09 23:23	21° $\mathbb{Z}$ 00'45	0°03'37	minimum elong	4003 Jan 11 02:37	20° $\mathbb{Z}$ 16'39	0°19'30
min. Earth dist.	3996 Jun 10 04:39	21° $\mathbb{Z}$ 00'12	17.67487 AU	max. Earth dist.	4003 Jan 11 06:54	20° $\mathbb{Z}$ 17'17	20.06672 AU
direct	3996 Aug 26 02:55	18° $\mathbb{Z}$ 56'44		retrograde	4003 Apr 28 09:27	24° $\mathbb{Z}$ 27'37	
				opposition	4003 Jul 13 07:37	22° $\mathbb{Z}$ 27'48	0°-23'-21
conjunction	3996 Dec 14 23:10	23° $\mathbb{Z}$ 19'53	0°01'27	min. Earth dist.	4003 Jul 13 02:55	22° $\mathbb{Z}$ 28'17	18.09765 AU
minimum elong	3996 Dec 14 23:11	23° $\mathbb{Z}$ 19'53	0°01'27	direct	4003 Sep 28 13:28	20° $\mathbb{Z}$ 26'07	
behind sun begin	3996 Dec 14 16:35	23° $\mathbb{Z}$ 18'53					
behind sun end	3996 Dec 15 05:48	23° $\mathbb{Z}$ 20'53		conjunction	4004 Jan 15 15:58	24° $\mathbb{Z}$ 39'21	0°-22'-35
max. Earth dist.	3996 Dec 14 18:12	23° $\mathbb{Z}$ 19'09	19.70295 AU	minimum elong	4004 Jan 15 15:58	24° $\mathbb{Z}$ 39'21	0°22'37
retrograde	3997 Apr 01 01:21	27° $\mathbb{Z}$ 36'07		max. Earth dist.	4004 Jan 15 21:02	24° $\mathbb{Z}$ 40'06	20.12908 AU
desc. node	3997 May 06 02:27	27° $\mathbb{Z}$ 04'44		retrograde	4004 May 02 00:48	28° $\mathbb{Z}$ 49'26	
opposition	3997 Jun 14 22:49	25° $\mathbb{Z}$ 35'29	0°00'-25	opposition	4004 Jul 17 02:56	26° $\mathbb{Z}$ 49'39	0°-26'-43
min. Earth dist.	3997 Jun 15 03:19	25° $\mathbb{Z}$ 35'01	17.73137 AU	min. Earth dist.	4004 Jul 16 20:46	26° $\mathbb{Z}$ 50'18	18.16038 AU
direct	3997 Aug 31 02:40	23° $\mathbb{Z}$ 31'51		direct	4004 Oct 02 07:19	24° $\mathbb{Z}$ 48'16	
conjunction	3997 Dec 19 17:50	27° $\mathbb{Z}$ 53'42	0°-2'-17	conjunction	4005 Jan 19 04:28	28° $\mathbb{Z}$ 59'59	0°-25'-33
minimum elong	3997 Dec 19 17:51	27° $\mathbb{Z}$ 53'42	0°02'17	minimum elong	4005 Jan 19 04:28	28° $\mathbb{Z}$ 59'59	0°25'34
behind sun begin	3997 Dec 19 11:15	27° $\mathbb{Z}$ 52'42		max. Earth dist.	4005 Jan 19 12:12	29° $\mathbb{Z}$ 01'09	20.19203 AU
behind sun end	3997 Dec 20 00:26	27° $\mathbb{Z}$ 54'42			4005 Feb 04 19:41	0° $\approx$	

retrograde	4005 May 06 15:11	3° <del>00</del> 09'13			4012 Dec 31 20:07	0° <del>00</del> 00'	
opposition	4005 Jul 21 21:26	1° <del>00</del> 09'30	0°-29'-53				
min. Earth dist.	4005 Jul 21 13:13	1° <del>00</del> 10'21	18.22357 AU	conjunction	4013 Feb 21 07:52	2° <del>00</del> 45'38	0°-42'-23
	4005 Aug 21 00:20	30° <del>00</del> 08'26		minimum elong	4013 Feb 21 07:52	2° <del>00</del> 45'38	0°42'24
direct	4005 Oct 07 02:26	29° <del>00</del> 08'26		max. Earth dist.	4013 Feb 22 02:09	2° <del>00</del> 48'20	20.68342 AU
	4005 Nov 21 09:47	0° <del>00</del> 00'		retrograde	4013 Jun 09 19:22	6° <del>00</del> 49'33	
				min. Earth dist.	4013 Aug 25 07:35	4° <del>00</del> 52'38	18.70972 AU
conjunction	4006 Jan 23 16:08	3° <del>00</del> 18'41	0°-28'-20	opposition	4013 Aug 26 02:02	4° <del>00</del> 50'47	0°-47'-35
minimum elong	4006 Jan 23 16:08	3° <del>00</del> 18'41	0°28'20	direct	4013 Nov 10 20:17	2° <del>00</del> 52'37	
max. Earth dist.	4006 Jan 24 00:47	3° <del>00</del> 19'59	20.25549 AU				
retrograde	4006 May 11 05:13	7° <del>00</del> 27'05		conjunction	4014 Feb 25 15:02	6° <del>00</del> 52'51	0°-43'-32
opposition	4006 Jul 26 15:07	5° <del>00</del> 27'27	0°-32'-52	minimum elong	4014 Feb 25 15:02	6° <del>00</del> 52'51	0°43'34
min. Earth dist.	4006 Jul 26 05:40	5° <del>00</del> 28'25	18.28744 AU	max. Earth dist.	4014 Feb 26 09:35	6° <del>00</del> 55'34	20.73457 AU
direct	4006 Oct 11 18:24	3° <del>00</del> 26'43		retrograde	4014 Jun 14 04:07	10° <del>00</del> 56'16	
				opposition	4014 Aug 30 14:57	8° <del>00</del> 57'33	0°-48'-43
conjunction	4007 Jan 28 03:11	7° <del>00</del> 35'34	0°-30'-56	min. Earth dist.	4014 Aug 29 20:58	8° <del>00</del> 59'21	18.75894 AU
minimum elong	4007 Jan 28 03:11	7° <del>00</del> 35'34	0°30'57	direct	4014 Nov 15 06:25	6° <del>00</del> 59'39	
max. Earth dist.	4007 Jan 28 14:12	7° <del>00</del> 37'13	20.31953 AU				
retrograde	4007 May 15 18:37	11° <del>00</del> 43'10		conjunction	4015 Mar 01 21:52	10° <del>00</del> 58'51	0°-44'-28
opposition	4007 Jul 31 08:12	9° <del>00</del> 43'40	0°-35'-39	minimum elong	4015 Mar 01 21:52	10° <del>00</del> 58'51	0°44'28
min. Earth dist.	4007 Jul 30 20:33	9° <del>00</del> 44'51	18.35151 AU	max. Earth dist.	4015 Mar 02 17:14	11° <del>00</del> 01'41	20.78173 AU
direct	4007 Oct 16 11:33	7° <del>00</del> 43'19		retrograde	4015 Jun 18 15:09	15° <del>00</del> 01'48	
				min. Earth dist.	4015 Sep 03 07:45	13° <del>00</del> 05'03	18.80395 AU
conjunction	4008 Feb 01 13:14	11° <del>00</del> 50'46	0°-33'-21	opposition	4015 Sep 04 03:16	13° <del>00</del> 03'06	0°-49'-36
minimum elong	4008 Feb 01 13:14	11° <del>00</del> 50'46	0°33'21	direct	4015 Nov 19 18:09	11° <del>00</del> 05'25	
max. Earth dist.	4008 Feb 02 01:15	11° <del>00</del> 52'33	20.38356 AU				
	4008 Apr 01 08:26	15° <del>00</del> 00'		conjunction	4016 Mar 05 04:04	15° <del>00</del> 03'37	0°-45'-10
retrograde	4008 May 19 07:44	15° <del>00</del> 57'40		minimum elong	4016 Mar 05 04:04	15° <del>00</del> 03'37	0°45'11
	4008 Jul 08 09:50	15° <del>00</del> 00'		max. Earth dist.	4016 Mar 05 23:47	15° <del>00</del> 06'30	20.82461 AU
opposition	4008 Aug 04 00:47	13° <del>00</del> 58'17	0°-38'-13	retrograde	4016 Jun 21 22:51	19° <del>00</del> 06'09	
min. Earth dist.	4008 Aug 03 12:12	13° <del>00</del> 59'34	18.41551 AU	opposition	4016 Sep 07 15:07	17° <del>00</del> 07'25	0°-50'-14
direct	4008 Oct 20 01:44	11° <del>00</del> 58'18		min. Earth dist.	4016 Sep 06 20:10	17° <del>00</del> 09'18	18.84491 AU
	4009 Jan 17 19:06	15° <del>00</del> 00'		direct	4016 Nov 23 03:01	15° <del>00</del> 09'55	
conjunction	4009 Feb 04 22:54	16° <del>00</del> 04'26	0°-35'-34	conjunction	4017 Mar 09 10:04	19° <del>00</del> 07'11	0°-45'-38
minimum elong	4009 Feb 04 22:54	16° <del>00</del> 04'26	0°35'35	minimum elong	4017 Mar 09 10:04	19° <del>00</del> 07'11	0°45'38
max. Earth dist.	4009 Feb 05 12:59	16° <del>00</del> 06'32	20.44723 AU	max. Earth dist.	4017 Mar 10 06:33	19° <del>00</del> 10'10	20.86368 AU
retrograde	4009 May 23 20:34	20° <del>00</del> 10'38		retrograde	4017 Jun 26 08:45	23° <del>00</del> 09'18	
opposition	4009 Aug 08 16:28	18° <del>00</del> 11'24	0°-40'-33	min. Earth dist.	4017 Sep 11 05:33	21° <del>00</del> 12'34	18.88212 AU
min. Earth dist.	4009 Aug 08 01:50	18° <del>00</del> 12'54	18.47864 AU	opposition	4017 Sep 12 02:00	21° <del>00</del> 10'31	0°-50'-37
direct	4009 Oct 24 16:58	16° <del>00</del> 11'50		direct	4017 Nov 27 13:02	19° <del>00</del> 13'10	
conjunction	4010 Feb 09 07:50	20° <del>00</del> 16'40	0°-37'-36	conjunction	4018 Mar 13 15:37	23° <del>00</del> 09'36	0°-45'-52
minimum elong	4010 Feb 09 07:50	20° <del>00</del> 16'40	0°37'36	minimum elong	4018 Mar 13 15:37	23° <del>00</del> 09'36	0°45'53
max. Earth dist.	4010 Feb 09 22:41	20° <del>00</del> 18'53	20.50964 AU	max. Earth dist.	4018 Mar 14 12:30	23° <del>00</del> 12'38	20.89907 AU
retrograde	4010 May 28 08:23	24° <del>00</del> 22'15		retrograde	4018 Jun 30 15:58	27° <del>00</del> 11'23	
opposition	4010 Aug 13 07:47	22° <del>00</del> 23'09	0°-42'-40	opposition	4018 Sep 16 12:38	25° <del>00</del> 12'33	0°-50'-44
min. Earth dist.	4010 Aug 12 16:46	22° <del>00</del> 24'40	18.54034 AU	min. Earth dist.	4018 Sep 15 16:43	25° <del>00</del> 14'32	18.91598 AU
direct	4010 Oct 29 05:54	20° <del>00</del> 23'58		direct	4018 Dec 01 20:39	23° <del>00</del> 15'21	
conjunction	4011 Feb 13 16:18	24° <del>00</del> 27'35	0°-39'-24	conjunction	4019 Mar 17 20:51	27° <del>00</del> 11'00	0°-45'-52
minimum elong	4011 Feb 13 16:18	24° <del>00</del> 27'35	0°39'25	minimum elong	4019 Mar 17 20:51	27° <del>00</del> 11'00	0°45'53
max. Earth dist.	4011 Feb 14 08:48	24° <del>00</del> 30'02	20.57030 AU	max. Earth dist.	4019 Mar 18 18:30	27° <del>00</del> 14'08	20.93137 AU
retrograde	4011 Jun 01 20:56	28° <del>00</del> 32'34			4019 May 10 15:39	0° <del>00</del> 00'	
opposition	4011 Aug 17 22:24	26° <del>00</del> 33'36	0°-44'-33	retrograde	4019 Jul 05 01:18	1° <del>00</del> 12'30	
min. Earth dist.	4011 Aug 17 05:29	26° <del>00</del> 35'18	18.59978 AU		4019 Sep 01 02:00	30° <del>00</del> 00'	
direct	4011 Nov 02 19:47	24° <del>00</del> 34'47		opposition	4019 Sep 20 22:39	29° <del>00</del> 13'38	0°-50'-36
				min. Earth dist.	4019 Sep 20 01:08	29° <del>00</del> 15'47	18.94673 AU
conjunction	4012 Feb 18 00:17	28° <del>00</del> 37'13	0°-41'00	direct	4019 Dec 06 05:18	27° <del>00</del> 16'35	
minimum elong	4012 Feb 18 00:17	28° <del>00</del> 37'13	0°41'02		4020 Feb 29 03:56	0° <del>00</del> 00'	
max. Earth dist.	4012 Feb 18 17:22	28° <del>00</del> 39'45	20.62837 AU				
	4012 Mar 12 18:36	0° <del>00</del> 00'		conjunction	4020 Mar 21 01:57	1° <del>00</del> 11'33	0°-45'-38
retrograde	4012 Jun 05 07:17	2° <del>00</del> 41'40		minimum elong	4020 Mar 21 01:57	1° <del>00</del> 11'33	0°45'39
opposition	4012 Aug 21 12:36	0° <del>00</del> 42'48	0°-46'-11	max. Earth dist.	4020 Mar 21 23:58	1° <del>00</del> 14'44	20.96052 AU
min. Earth dist.	4012 Aug 20 19:46	0° <del>00</del> 44'30	18.65652 AU	retrograde	4020 Jul 08 08:34	5° <del>00</del> 12'51	
	4012 Sep 08 16:02	30° <del>00</del> 00'		min. Earth dist.	4020 Sep 23 11:24	3° <del>00</del> 16'02	18.97443 AU
direct	4012 Nov 06 07:27	28° <del>00</del> 44'20		opposition	4020 Sep 24 08:17	3° <del>00</del> 13'56	0°-50'-13

direct	4020 Dec 09 11:30	1°♈17'03		direct	4029 Jan 10 11:17	3°♏10'22	
conjunction	4021 Mar 25 06:58	5°♈11'25	0°-45'-12	conjunction	4029 Apr 26 02:36	7°♏03'15	0°-34'-16
minimum elong	4021 Mar 25 06:58	5°♈11'25	0°45'14	minimum elong	4029 Apr 26 02:36	7°♏03'15	0°34'16
max. Earth dist.	4021 Mar 26 05:29	5°♈14'40	20.98668 AU	max. Earth dist.	4029 Apr 26 22:02	7°♏06'02	21.04224 AU
retrograde	4021 Jul 12 17:53	9°♈12'34		retrograde	4029 Aug 14 14:01	11°♏05'12	
opposition	4021 Sep 28 17:22	7°♈13'39	0°-49'-36	opposition	4029 Oct 31 09:55	9°♏05'56	0°-36'-37
min. Earth dist.	4021 Sep 27 19:11	7°♈15'52	18.99887 AU	min. Earth dist.	4029 Oct 30 15:49	9°♏07'46	19.03477 AU
direct	4021 Dec 13 19:18	5°♈16'54		direct	4030 Jan 14 17:21	7°♏09'32	
conjunction	4022 Mar 29 11:52	9°♈10'47	0°-44'-33	conjunction	4030 Apr 30 08:56	11°♏02'36	0°-32'-3
minimum elong	4022 Mar 29 11:52	9°♈10'47	0°44'33	minimum elong	4030 Apr 30 08:56	11°♏02'36	0°32'05
max. Earth dist.	4022 Mar 30 10:32	9°♈14'03	21.00931 AU	max. Earth dist.	4030 May 01 03:36	11°♏05'16	21.02554 AU
retrograde	4022 Jul 17 01:01	13°♈11'50			4030 Aug 04 19:07	15°♏	
min. Earth dist.	4022 Oct 02 04:58	11°♈15'03	19.01976 AU	retrograde	4030 Aug 18 21:31	15°♏04'52	
opposition	4022 Oct 03 02:14	11°♈12'55	0°-48'-45		4030 Sep 02 03:21	15°♏	
direct	4022 Dec 18 00:25	9°♈16'19		opposition	4030 Nov 04 17:21	13°♏05'26	0°-34'-5
conjunction	4023 Apr 02 16:51	13°♈09'48	0°-43'-40	min. Earth dist.	4030 Nov 04 00:56	13°♏07'06	19.01571 AU
minimum elong	4023 Apr 02 16:51	13°♈09'48	0°43'42	direct	4031 Jan 18 22:37	11°♏08'55	
max. Earth dist.	4023 Apr 03 15:44	13°♈13'05	21.02845 AU	conjunction	4031 May 04 15:42	15°♏02'14	0°-29'-41
retrograde	4023 Jul 21 10:37	17°♈10'50		minimum elong	4031 May 04 15:42	15°♏02'14	0°29'42
opposition	4023 Oct 07 10:45	15°♈11'55	0°-47'-40		4031 May 04 00:03	15°♏	
min. Earth dist.	4023 Oct 06 12:29	15°♈14'08	19.03688 AU	max. Earth dist.	4031 May 05 09:30	15°♏04'47	21.00444 AU
direct	4023 Dec 22 07:40	13°♈15'27		retrograde	4031 Aug 23 07:56	19°♏04'51	
conjunction	4024 Apr 05 21:51	17°♈08'37	0°-42'-36	min. Earth dist.	4031 Nov 08 08:03	17°♏06'56	18.99252 AU
minimum elong	4024 Apr 05 21:52	17°♈08'37	0°42'36	opposition	4031 Nov 09 00:32	17°♏05'16	0°-31'-23
max. Earth dist.	4024 Apr 06 20:39	17°♈11'53	21.04344 AU	direct	4032 Jan 23 04:30	15°♏08'35	
retrograde	4024 Jul 24 17:54	21°♈09'41		conjunction	4032 May 07 22:47	19°♏02'16	0°-27'-10
opposition	4024 Oct 10 19:09	19°♈10'46	0°-46'-22	minimum elong	4032 May 07 22:47	19°♏02'16	0°27'11
min. Earth dist.	4024 Oct 09 22:12	19°♈12'52	19.04971 AU	max. Earth dist.	4032 May 08 15:53	19°♏04'42	20.97924 AU
direct	4024 Dec 25 12:15	17°♈14'25		retrograde	4032 Aug 26 15:37	23°♏05'18	
conjunction	4025 Apr 10 03:11	21°♈07'22	0°-41'-19	opposition	4032 Nov 12 07:50	21°♏05'34	0°-28'-32
minimum elong	4025 Apr 10 03:11	21°♈07'22	0°41'20	min. Earth dist.	4032 Nov 11 17:00	21°♏07'04	18.96547 AU
max. Earth dist.	4025 Apr 11 01:42	21°♈10'36	21.05401 AU	direct	4033 Jan 26 09:36	19°♏08'44	
retrograde	4025 Jul 29 03:30	25°♈08'31		conjunction	4033 May 12 06:22	23°♏02'51	0°-24'-30
min. Earth dist.	4025 Oct 14 05:37	23°♈11'44	19.05777 AU	minimum elong	4033 May 12 06:22	23°♏02'51	0°24'31
opposition	4025 Oct 15 03:01	23°♈09'36	0°-44'-50	max. Earth dist.	4033 May 12 22:26	23°♏05'09	20.95056 AU
direct	4025 Dec 29 19:07	21°♈13'20		retrograde	4033 Aug 31 02:51	27°♏06'21	
conjunction	4026 Apr 14 08:40	25°♈06'10	0°-39'-50	opposition	4033 Nov 16 14:56	25°♏06'28	0°-25'-31
minimum elong	4026 Apr 14 08:40	25°♈06'10	0°39'51	min. Earth dist.	4033 Nov 16 00:08	25°♏07'58	18.93509 AU
max. Earth dist.	4026 Apr 15 06:38	25°♈09'18	21.05942 AU	direct	4034 Jan 30 16:01	23°♏09'28	
retrograde	4026 Aug 02 11:04	29°♈07'28		conjunction	4034 May 16 14:23	27°♏04'09	0°-21'-44
opposition	4026 Oct 19 11:04	27°♈08'30	0°-43'-5	minimum elong	4034 May 16 14:23	27°♏04'09	0°21'44
min. Earth dist.	4026 Oct 18 15:19	27°♈10'29	19.06050 AU	max. Earth dist.	4034 May 17 05:45	27°♏06'20	20.91854 AU
direct	4027 Jan 02 23:46	25°♈12'17			4034 Jul 12 13:03	0°♊	
conjunction	4027 Apr 18 14:19	29°♈05'03	0°-38'-10	retrograde	4034 Sep 04 11:04	1°♊08'10	
minimum elong	4027 Apr 18 14:19	29°♈05'03	0°38'10		4034 Oct 30 00:14	30°♏	
max. Earth dist.	4027 Apr 19 11:35	29°♈08'06	21.05944 AU	opposition	4034 Nov 20 22:23	29°♏08'09	0°-22'-23
	4027 May 04 17:08	0°♏		min. Earth dist.	4034 Nov 20 09:12	29°♏09'30	18.90153 AU
retrograde	4027 Aug 06 20:39	3°♏06'32		direct	4035 Feb 03 20:38	27°♏11'00	
opposition	4027 Oct 23 18:52	1°♏07'31	0°-41'-8		4035 May 01 11:16	0°♊	
min. Earth dist.	4027 Oct 22 22:55	1°♏09'31	19.05760 AU	conjunction	4035 May 20 22:51	1°♊06'18	0°-18'-50
	4027 Nov 22 16:09	30°♏		minimum elong	4035 May 20 22:52	1°♊06'18	0°18'52
direct	4028 Jan 07 06:20	29°♈11'17		max. Earth dist.	4035 May 21 13:04	1°♊08'20	20.88364 AU
	4028 Feb 20 08:48	0°♏		retrograde	4035 Sep 08 23:00	5°♊10'55	
conjunction	4028 Apr 21 20:20	3°♏04'05	0°-36'-18	opposition	4035 Nov 25 05:55	3°♊10'46	0°-19'-8
minimum elong	4028 Apr 21 20:20	3°♏04'05	0°36'19	min. Earth dist.	4035 Nov 24 16:58	3°♊12'06	18.86508 AU
max. Earth dist.	4028 Apr 22 16:44	3°♏07'00	21.05360 AU	direct	4036 Feb 08 04:10	1°♊13'26	
retrograde	4028 Aug 10 04:22	7°♏05'47		conjunction	4036 May 24 08:09	5°♊09'29	0°-15'-50
min. Earth dist.	4028 Oct 26 08:26	5°♏08'28	19.04889 AU	minimum elong	4036 May 24 08:09	5°♊09'29	0°15'51
opposition	4028 Oct 27 02:31	5°♏06'39	0°-38'-58	behind sun begin	4036 May 24 07:28	5°♊09'23	

behind sun end	4036 May 24 08:49	5°II09'34		direct	4043 Mar 08 11:17	0°☾05'20	
max. Earth dist.	4036 May 24 21:31	5°II11'24	20.84567 AU				
retrograde	4036 Sep 12 08:02	9°II14'43		conjunction	4043 Jun 23 21:51	4°☾08'30	0°07'03
opposition	4036 Nov 28 13:37	7°II14'29	0°-15'-46	minimum elong	4043 Jun 23 21:51	4°☾08'30	0°07'03
min. Earth dist.	4036 Nov 28 02:31	7°II15'37	18.82560 AU	behind sun begin	4043 Jun 23 15:39	4°☾07'37	
direct	4037 Feb 11 09:09	5°II16'58		behind sun end	4043 Jun 24 04:04	4°☾09'23	
				max. Earth dist.	4043 Jun 23 23:00	4°☾08'39	20.48663 AU
conjunction	4037 May 28 18:04	9°II13'49	0°-12'-45	retrograde	4043 Oct 12 23:53	8°☾18'56	
minimum elong	4037 May 28 18:04	9°II13'49	0°12'47	opposition	4043 Dec 28 05:23	6°☾17'41	0°09'37
behind sun begin	4037 May 28 13:57	9°II13'15		min. Earth dist.	4043 Dec 28 04:22	6°☾17'47	18.45488 AU
behind sun end	4037 May 28 22:11	9°II14'24		direct	4044 Mar 11 21:51	4°☾18'04	
max. Earth dist.	4037 May 29 05:54	9°II15'31	20.80482 AU				
retrograde	4037 Sep 16 20:32	13°II19'44		conjunction	4044 Jun 27 13:20	8°☾22'30	0°10'21
opposition	4037 Dec 02 21:36	11°II19'24	0°-12'-18	minimum elong	4044 Jun 27 13:20	8°☾22'30	0°10'21
min. Earth dist.	4037 Dec 02 11:06	11°II20'29	18.78313 AU	behind sun begin	4044 Jun 27 08:03	8°☾21'45	
direct	4038 Feb 15 17:20	9°II21'42		behind sun end	4044 Jun 27 18:36	8°☾23'15	
				max. Earth dist.	4044 Jun 27 13:30	8°☾22'31	20.42307 AU
conjunction	4038 Jun 02 04:38	13°II19'28	0°-9'-36	retrograde	4044 Oct 16 13:41	12°☾33'42	
minimum elong	4038 Jun 02 04:37	13°II19'28	0°09'37	opposition	4044 Dec 31 15:57	10°☾32'16	0°13'17
behind sun begin	4038 Jun 01 23:06	13°II18'41		min. Earth dist.	4044 Dec 31 16:41	10°☾32'12	18.39054 AU
behind sun end	4038 Jun 02 10:08	13°II20'14		direct	4045 Mar 16 08:16	8°☾32'15	
max. Earth dist.	4038 Jun 02 15:28	13°II21'01	20.76066 AU				
retrograde	4038 Sep 21 06:48	17°II26'05		conjunction	4045 Jul 02 05:24	12°☾37'58	0°13'38
opposition	4038 Dec 07 06:03	15°II25'40	0°-8'-45	minimum elong	4045 Jul 02 05:23	12°☾37'58	0°13'38
min. Earth dist.	4038 Dec 06 21:33	15°II26'33	18.73725 AU	behind sun begin	4045 Jul 02 01:52	12°☾37'28	
direct	4039 Feb 19 23:49	13°II27'45		behind sun end	4045 Jul 02 08:55	12°☾38'29	
				max. Earth dist.	4045 Jul 02 03:03	12°☾37'38	20.35825 AU
conjunction	4039 Jun 06 16:06	17°II26'29	0°-6'-22	retrograde	4045 Oct 21 05:03	16°☾50'01	
minimum elong	4039 Jun 06 16:06	17°II26'29	0°06'24	opposition	4046 Jan 05 03:06	14°☾48'22	0°16'54
behind sun begin	4039 Jun 06 09:48	17°II25'36		min. Earth dist.	4046 Jan 05 05:02	14°☾48'10	18.32535 AU
behind sun end	4039 Jun 06 22:24	17°II27'22		direct	4046 Mar 20 19:47	12°☾47'56	
max. Earth dist.	4039 Jun 07 00:53	17°II27'44	20.71314 AU				
retrograde	4039 Sep 25 19:46	21°II33'51		conjunction	4046 Jul 06 22:13	16°☾55'01	0°16'51
opposition	4039 Dec 11 14:40	19°II33'19	0°-5'-8	minimum elong	4046 Jul 06 22:13	16°☾55'01	0°16'51
min. Earth dist.	4039 Dec 11 07:10	19°II34'05	18.68787 AU	max. Earth dist.	4046 Jul 06 19:21	16°☾54'36	20.29271 AU
direct	4040 Feb 24 08:22	17°II35'08		retrograde	4046 Oct 25 20:16	21°☾07'53	
				opposition	4047 Jan 09 14:48	19°☾06'05	0°20'27
conjunction	4040 Jun 10 04:29	21°II34'55	0°-3'-5	min. Earth dist.	4047 Jan 09 18:04	19°☾05'44	18.25973 AU
minimum elong	4040 Jun 10 04:28	21°II34'55	0°03'07	direct	4047 Mar 25 07:31	17°☾05'15	
behind sun begin	4040 Jun 09 21:47	21°II33'58					
behind sun end	4040 Jun 10 11:09	21°II35'51		conjunction	4047 Jul 11 15:54	21°☾13'43	0°20'00
max. Earth dist.	4040 Jun 10 11:53	21°II35'58	20.66175 AU	minimum elong	4047 Jul 11 15:54	21°☾13'43	0°19'59
retrograde	4040 Sep 29 07:32	25°II43'01		max. Earth dist.	4047 Jul 11 10:30	21°☾12'56	20.22722 AU
opposition	4040 Dec 14 23:50	23°II42'21	0°-1'-28	retrograde	4047 Oct 30 12:42	25°☾27'27	
min. Earth dist.	4040 Dec 14 18:28	23°II42'54	18.63452 AU	opposition	4048 Jan 14 02:56	23°☾25'30	0°23'53
direct	4041 Feb 27 16:30	21°II43'52		min. Earth dist.	4048 Jan 14 07:31	23°☾25'00	18.19450 AU
asc. node	4041 May 12 22:24	23°II54'22		direct	4048 Mar 28 19:57	21°☾24'16	
conjunction	4041 Jun 14 17:31	25°II44'44	0°00'19	conjunction	4048 Jul 15 10:37	25°☾34'12	0°23'02
minimum elong	4041 Jun 14 17:31	25°II44'44	0°00'19	minimum elong	4048 Jul 15 10:37	25°☾34'12	0°23'03
behind sun begin	4041 Jun 14 10:50	25°II43'48		max. Earth dist.	4048 Jul 15 04:47	25°☾33'20	20.16219 AU
behind sun end	4041 Jun 15 00:12	25°II45'41		retrograde	4048 Nov 03 05:55	29°☾48'47	
max. Earth dist.	4041 Jun 14 22:25	25°II45'24	20.60662 AU	opposition	4049 Jan 17 15:47	27°☾46'43	0°27'13
retrograde	4041 Oct 03 20:46	29°II53'36		min. Earth dist.	4049 Jan 17 21:27	27°☾46'07	18.12988 AU
opposition	4041 Dec 19 09:15	27°II52'46	0°02'13	direct	4049 Apr 02 09:07	25°☾45'09	
min. Earth dist.	4041 Dec 19 05:04	27°II53'12	18.57756 AU				
direct	4042 Mar 04 01:58	25°II53'56		conjunction	4049 Jul 20 05:53	29°☾56'32	0°25'58
				minimum elong	4049 Jul 20 05:53	29°☾56'32	0°25'58
conjunction	4042 Jun 19 07:23	29°II55'56	0°03'43	max. Earth dist.	4049 Jul 19 21:29	29°☾55'18	20.09812 AU
minimum elong	4042 Jun 19 07:22	29°II55'56	0°03'42		4049 Jul 21 05:10	0°♂	
behind sun begin	4042 Jun 19 00:43	29°II54'59		retrograde	4049 Nov 07 23:32	4°♂12'02	
behind sun end	4042 Jun 19 14:02	29°II56'52		opposition	4050 Jan 22 05:18	2°♂09'52	0°30'25
max. Earth dist.	4042 Jun 19 11:02	29°II56'25	20.54796 AU	min. Earth dist.	4050 Jan 22 12:22	2°♂09'07	18.06645 AU
	4042 Jun 20 11:24	0°☾		direct	4050 Apr 06 22:21	0°♂07'57	
retrograde	4042 Oct 08 09:38	4°☾05'34					
opposition	4042 Dec 23 19:08	2°☾04'32	0°05'55	conjunction	4050 Jul 25 02:17	4°♂20'53	0°28'47
min. Earth dist.	4042 Dec 23 16:54	2°☾04'46	18.51739 AU	minimum elong	4050 Jul 25 02:17	4°♂20'53	0°28'46

max. Earth dist.	4050 Jul 24 17:36	4°♏19'35	20.03525 AU	max. Earth dist.	4058 Aug 31 04:57	10°♐40'04	19.57678 AU
retrograde	4050 Nov 12 19:03	8°♏37'14					
opposition	4051 Jan 26 19:24	6°♏35'02	0°33'27	conjunction	4058 Sep 01 01:48	10°♐43'16	0°44'13
min. Earth dist.	4051 Jan 27 03:26	6°♏34'10	18.00418 AU	minimum elong	4058 Sep 01 01:48	10°♐43'16	0°44'13
direct	4051 Apr 11 13:17	4°♏32'49		retrograde	4058 Dec 19 16:13	15°♐05'12	
				opposition	4059 Mar 03 14:08	13°♐02'23	0°49'43
conjunction	4051 Jul 29 23:28	8°♏47'15	0°31'26	min. Earth dist.	4059 Mar 04 07:31	13°♐00'29	17.55324 AU
minimum elong	4051 Jul 29 23:28	8°♏47'15	0°31'26	direct	4059 May 17 21:09	10°♐57'27	
max. Earth dist.	4051 Jul 29 12:03	8°♏45'33	19.97359 AU	max. Earth dist.	4059 Sep 05 06:34	15°♐19'26	19.53021 AU
retrograde	4051 Nov 17 13:39	13°♏04'29					
opposition	4052 Jan 31 10:19	11°♏02'14	0°36'20	conjunction	4059 Sep 06 04:23	15°♐22'47	0°45'00
min. Earth dist.	4052 Jan 31 20:12	11°♏01'11	17.94312 AU	minimum elong	4059 Sep 06 04:23	15°♐22'47	0°45'00
direct	4052 Apr 15 03:47	8°♏59'42		retrograde	4059 Dec 24 13:26	19°♐45'09	
				opposition	4060 Mar 07 10:29	17°♐42'15	0°50'27
conjunction	4052 Aug 02 21:45	13°♏15'42	0°33'55	min. Earth dist.	4060 Mar 08 05:27	17°♐40'11	17.50893 AU
minimum elong	4052 Aug 02 21:45	13°♏15'42	0°33'55	direct	4060 May 21 18:55	15°♐37'01	
max. Earth dist.	4052 Aug 02 09:50	13°♏13'54	19.91289 AU	max. Earth dist.	4060 Sep 09 08:49	19°♐59'58	19.48821 AU
	4052 Sep 01 13:20	15°♏					
retrograde	4052 Nov 21 10:49	17°♏33'45		conjunction	4060 Sep 10 07:11	20°♐03'25	0°45'30
opposition	4053 Feb 04 01:52	15°♏31'28	0°39'00	minimum elong	4060 Sep 10 07:11	20°♐03'25	0°45'31
min. Earth dist.	4053 Feb 04 12:40	15°♏30'18	17.88285 AU	retrograde	4060 Dec 28 13:28	24°♐26'09	
	4053 Feb 16 08:57	15°♏		opposition	4061 Mar 12 07:15	22°♐23'13	0°50'51
direct	4053 Apr 19 20:52	13°♏28'38		min. Earth dist.	4061 Mar 13 01:35	22°♐21'12	17.46940 AU
	4053 Jun 19 06:37	15°♏		direct	4061 May 26 19:17	20°♐17'42	
conjunction	4053 Aug 07 20:43	17°♏46'07	0°36'13	conjunction	4061 Sep 15 10:21	24°♐45'05	0°45'42
minimum elong	4053 Aug 07 20:42	17°♏46'07	0°36'13	minimum elong	4061 Sep 15 10:21	24°♐45'05	0°45'42
max. Earth dist.	4053 Aug 07 05:58	17°♏43'54	19.85304 AU	max. Earth dist.	4061 Sep 14 12:01	24°♐41'37	19.45123 AU
retrograde	4053 Nov 26 05:50	22°♏04'59		retrograde	4062 Jan 02 11:31	29°♐08'07	
opposition	4054 Feb 08 18:21	20°♏02'37	0°41'27	opposition	4062 Mar 17 04:45	27°♐05'11	0°50'54
min. Earth dist.	4054 Feb 09 07:09	20°♏01'14	17.82358 AU	min. Earth dist.	4062 Mar 18 00:13	27°♐03'03	17.43529 AU
direct	4054 Apr 24 13:35	17°♏59'27		direct	4062 May 31 17:36	24°♐59'28	
conjunction	4054 Aug 12 20:28	22°♏18'23	0°38'18	conjunction	4062 Sep 20 13:39	29°♐27'44	0°45'35
minimum elong	4054 Aug 12 20:28	22°♏18'23	0°38'17	minimum elong	4062 Sep 20 13:39	29°♐27'44	0°45'35
max. Earth dist.	4054 Aug 12 05:08	22°♏16'04	19.79418 AU	max. Earth dist.	4062 Sep 19 14:38	29°♐24'09	19.42002 AU
retrograde	4054 Dec 01 03:30	26°♏37'59			4062 Sep 29 05:30	0°♌	
opposition	4055 Feb 13 11:25	24°♏35'33	0°43'40	retrograde	4063 Jan 07 12:31	3°♌51'03	
min. Earth dist.	4055 Feb 14 00:50	24°♏34'06	17.76523 AU	opposition	4063 Mar 22 02:42	1°♌48'09	0°50'37
direct	4055 Apr 29 08:53	22°♏32'03		min. Earth dist.	4063 Mar 22 21:20	1°♌46'07	17.40692 AU
					4063 May 10 18:40	30°♏	
conjunction	4055 Aug 17 20:58	26°♏52'23	0°40'10	direct	4063 Jun 05 18:57	29°♐42'18	
minimum elong	4055 Aug 17 20:58	26°♏52'23	0°40'10		4063 Jul 01 12:19	0°♌	
max. Earth dist.	4055 Aug 17 03:04	26°♏49'40	19.73646 AU				
	4055 Oct 13 20:26	0°♐		conjunction	4063 Sep 25 17:24	4°♌11'22	0°45'10
retrograde	4055 Dec 05 22:52	1°♐12'39		minimum elong	4063 Sep 25 17:24	4°♌11'22	0°45'11
	4056 Jan 29 11:46	30°♏		max. Earth dist.	4063 Sep 24 19:05	4°♌07'53	19.39447 AU
opposition	4056 Feb 18 05:10	29°♏10'08	0°45'37	retrograde	4064 Jan 12 11:24	8°♌34'53	
min. Earth dist.	4056 Feb 18 20:41	29°♏08'26	17.70842 AU	opposition	4064 Mar 26 01:17	6°♌32'05	0°50'00
direct	4056 May 03 03:50	27°♏06'14		min. Earth dist.	4064 Mar 26 20:48	6°♌29'57	17.38424 AU
	4056 Jul 28 11:24	0°♐		direct	4064 Jun 09 18:15	4°♌26'09	
conjunction	4056 Aug 21 22:11	1°♐27'57	0°41'47	conjunction	4064 Sep 29 21:06	8°♌55'55	0°44'27
minimum elong	4056 Aug 21 22:11	1°♐27'57	0°41'46	minimum elong	4064 Sep 29 21:06	8°♌55'55	0°44'26
max. Earth dist.	4056 Aug 21 03:39	1°♐25'08	19.68059 AU	max. Earth dist.	4064 Sep 28 21:56	8°♌52'18	19.37469 AU
retrograde	4056 Dec 09 21:07	5°♐48'50		retrograde	4065 Jan 16 12:52	13°♌19'35	
opposition	4057 Feb 21 23:32	3°♐46'12	0°47'17	opposition	4065 Mar 31 00:21	11°♌16'53	0°49'02
min. Earth dist.	4057 Feb 22 15:15	3°♐44'30	17.65364 AU	min. Earth dist.	4065 Mar 31 19:10	11°♌14'50	17.36720 AU
direct	4057 May 08 01:26	1°♐41'59		direct	4065 Jun 14 20:19	9°♌10'55	
				max. Earth dist.	4065 Oct 04 02:58	13°♌37'50	19.36021 AU
conjunction	4057 Aug 26 23:39	6°♐04'57	0°43'08	conjunction	4065 Oct 05 00:53	13°♌41'16	0°43'25
minimum elong	4057 Aug 26 23:39	6°♐04'57	0°43'08	minimum elong	4065 Oct 05 00:53	13°♌41'16	0°43'26
max. Earth dist.	4057 Aug 26 03:22	6°♐01'51	19.62705 AU	retrograde	4066 Jan 21 12:24	18°♌05'01	
retrograde	4057 Dec 14 17:09	10°♐26'24		opposition	4066 Apr 05 00:02	16°♌02'27	0°47'44
opposition	4058 Feb 26 18:40	8°♐23'40	0°48'40	min. Earth dist.	4066 Apr 05 19:27	16°♌00'20	17.35521 AU
min. Earth dist.	4058 Feb 27 12:14	8°♐21'45	17.60171 AU	direct	4066 Jun 19 20:52	13°♌56'29	
direct	4058 May 12 22:02	6°♐19'04					

max. Earth dist.	4066 Oct 09 05:44	18° <del>2</del> 23'40	19.35070 AU	opposition	4074 May 13 06:09	24° <del>1</del> 06'48	0°26'38
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conjunction	4066 Oct 10 04:41	18° <del>2</del> 27'16	0°42'06	direct	4074 Jul 29 00:58	22° <del>1</del> 01'10	
minimum elong	4066 Oct 10 04:41	18° <del>2</del> 27'16	0°42'06				
retrograde	4067 Jan 26 13:33	22° <del>2</del> 51'00		conjunction	4074 Nov 17 22:46	26° <del>1</del> 30'14	0°22'15
opposition	4067 Apr 09 23:56	20° <del>2</del> 48'33	0°46'06	minimum elong	4074 Nov 17 22:46	26° <del>1</del> 30'14	0°22'14
min. Earth dist.	4067 Apr 10 18:57	20° <del>2</del> 46'29	17.34809 AU	max. Earth dist.	4074 Nov 17 06:52	26° <del>1</del> 27'45	19.43943 AU
direct	4067 Jun 24 23:55	18° <del>2</del> 42'34			4075 Jan 21 03:03	0° <del>2</del>	
max. Earth dist.	4067 Oct 14 10:57	23° <del>2</del> 10'17	19.34579 AU	retrograde	4075 Mar 05 05:39	0° <del>2</del> 50'48	
					4075 Apr 18 21:26	30° <del>2</del>	
conjunction	4067 Oct 15 08:36	23° <del>2</del> 13'41	0°40'29	opposition	4075 May 18 06:59	28° <del>1</del> 49'07	0°22'58
minimum elong	4067 Oct 15 08:36	23° <del>2</del> 13'41	0°40'29	min. Earth dist.	4075 May 18 20:58	28° <del>1</del> 47'37	17.45569 AU
retrograde	4068 Jan 31 12:58	27° <del>2</del> 37'17		direct	4075 Aug 03 02:27	26° <del>1</del> 43'38	
opposition	4068 Apr 14 00:28	25° <del>2</del> 34'58	0°44'08		4075 Nov 03 14:21	0° <del>2</del>	
min. Earth dist.	4068 Apr 14 19:34	25° <del>2</del> 32'54	17.34535 AU				
direct	4068 Jun 29 02:21	23° <del>2</del> 29'01		conjunction	4075 Nov 22 22:14	1° <del>2</del> 11'55	0°18'55
				minimum elong	4075 Nov 22 22:14	1° <del>2</del> 11'55	0°18'55
conjunction	4068 Oct 19 11:57	28° <del>2</del> 00'15	0°38'35	max. Earth dist.	4075 Nov 22 07:51	1° <del>2</del> 09'40	19.47309 AU
minimum elong	4068 Oct 19 11:57	28° <del>2</del> 00'15	0°38'36	retrograde	4076 Mar 09 04:37	5° <del>2</del> 31'49	
max. Earth dist.	4068 Oct 18 13:33	27° <del>2</del> 56'44	19.34532 AU	opposition	4076 May 22 07:39	3° <del>2</del> 30'16	0°19'11
	4068 Nov 21 08:09	0° <del>2</del>		min. Earth dist.	4076 May 22 19:05	3° <del>2</del> 29'03	17.49195 AU
retrograde	4069 Feb 04 12:59	2° <del>2</del> 23'41		direct	4076 Aug 07 05:28	1° <del>2</del> 25'02	
opposition	4069 Apr 19 01:13	0° <del>2</del> 21'28	0°41'53				
min. Earth dist.	4069 Apr 19 19:57	0° <del>2</del> 19'25	17.34715 AU	conjunction	4076 Nov 26 20:51	5° <del>2</del> 52'26	0°15'28
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direct	4069 Jul 04 06:16	28° <del>2</del> 15'31		behind sun begin	4076 Nov 26 18:59	5° <del>2</del> 52'09	
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minimum elong	4069 Oct 24 15:13	2° <del>2</del> 46'46	0°36'25	opposition	4077 May 27 08:15	8° <del>2</del> 10'16	0°15'17
max. Earth dist.	4069 Oct 23 18:20	2° <del>2</del> 43'29	19.34932 AU	min. Earth dist.	4077 May 27 19:08	8° <del>2</del> 09'06	17.53343 AU
retrograde	4070 Feb 09 12:16	7° <del>2</del> 09'53		direct	4077 Aug 12 06:19	6° <del>2</del> 05'18	
opposition	4070 Apr 24 02:02	5° <del>2</del> 07'46	0°39'19				
min. Earth dist.	4070 Apr 24 20:15	5° <del>2</del> 05'48	17.35326 AU	conjunction	4077 Dec 01 18:46	10° <del>2</del> 31'44	0°11'56
direct	4070 Jul 09 10:20	3° <del>2</del> 01'52		minimum elong	4077 Dec 01 18:47	10° <del>2</del> 31'45	0°11'57
				behind sun begin	4077 Dec 01 14:11	10° <del>2</del> 31'02	
conjunction	4070 Oct 29 17:56	7° <del>2</del> 32'57	0°34'00	behind sun end	4077 Dec 01 23:23	10° <del>2</del> 32'27	
minimum elong	4070 Oct 29 17:57	7° <del>2</del> 32'57	0°34'01	max. Earth dist.	4077 Dec 01 07:44	10° <del>2</del> 30'02	19.55601 AU
max. Earth dist.	4070 Oct 28 20:47	7° <del>2</del> 29'37	19.35773 AU	retrograde	4078 Mar 18 23:20	14° <del>2</del> 50'13	
retrograde	4071 Feb 14 11:08	11° <del>2</del> 55'43		opposition	4078 Jun 01 08:15	12° <del>2</del> 49'03	0°11'18
opposition	4071 Apr 29 03:06	9° <del>2</del> 53'41	0°36'29	min. Earth dist.	4078 Jun 01 16:38	12° <del>2</del> 48'10	17.57951 AU
min. Earth dist.	4071 Apr 29 21:05	9° <del>2</del> 51'44	17.36397 AU	direct	4078 Aug 17 08:50	10° <del>2</del> 44'24	
direct	4071 Jul 14 14:09	7° <del>2</del> 47'48					
				conjunction	4078 Dec 06 16:05	15° <del>2</del> 09'48	0°08'21
conjunction	4071 Nov 03 20:12	12° <del>2</del> 18'36	0°31'21	minimum elong	4078 Dec 06 16:05	15° <del>2</del> 09'49	0°08'22
minimum elong	4071 Nov 03 20:12	12° <del>2</del> 18'36	0°31'22	behind sun begin	4078 Dec 06 10:15	15° <del>2</del> 08'55	
max. Earth dist.	4071 Nov 03 00:39	12° <del>2</del> 15'31	19.37075 AU	behind sun end	4078 Dec 06 21:56	15° <del>2</del> 10'42	
	4071 Dec 19 15:05	15° <del>2</del>		max. Earth dist.	4078 Dec 06 07:26	15° <del>2</del> 08'29	19.60412 AU
retrograde	4072 Feb 19 10:36	16° <del>2</del> 40'54		retrograde	4079 Mar 23 19:05	19° <del>2</del> 27'32	
	4072 Apr 25 00:26	15° <del>2</del>		opposition	4079 Jun 06 08:21	17° <del>2</del> 26'34	0°07'16
opposition	4072 May 03 04:08	14° <del>2</del> 38'57	0°33'25	min. Earth dist.	4079 Jun 06 16:16	17° <del>2</del> 25'44	17.62946 AU
min. Earth dist.	4072 May 03 20:52	14° <del>2</del> 37'08	17.37920 AU	direct	4079 Aug 22 09:28	15° <del>2</del> 22'15	
direct	4072 Jul 18 18:42	12° <del>2</del> 33'08					
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				minimum elong	4079 Dec 11 12:22	19° <del>2</del> 46'32	0°04'44
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minimum elong	4072 Nov 07 21:46	17° <del>2</del> 03'28	0°28'30	behind sun end	4079 Dec 11 18:50	19° <del>2</del> 47'30	
max. Earth dist.	4072 Nov 07 02:48	17° <del>2</del> 00'30	19.38848 AU	max. Earth dist.	4079 Dec 11 04:33	19° <del>2</del> 45'20	19.65580 AU
retrograde	4073 Feb 23 08:40	21° <del>2</del> 25'16		retrograde	4080 Mar 27 15:50	24° <del>2</del> 03'29	
opposition	4073 May 08 05:15	19° <del>2</del> 23'23	0°30'07	opposition	4080 Jun 10 08:00	22° <del>2</del> 02'43	0°03'12
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direct	4073 Jul 23 21:08	17° <del>2</del> 17'38		direct	4080 Aug 26 11:05	19° <del>2</del> 58'45	
conjunction	4073 Nov 12 22:33	21° <del>2</del> 47'23	0°25'27	conjunction	4080 Dec 15 08:05	24° <del>2</del> 21'49	0°01'03
minimum elong	4073 Nov 12 22:34	21° <del>2</del> 47'23	0°25'28	minimum elong	4080 Dec 15 08:05	24° <del>2</del> 21'49	0°01'04
max. Earth dist.	4073 Nov 12 05:17	21° <del>2</del> 44'41	19.41138 AU	behind sun begin	4080 Dec 15 01:29	24° <del>2</del> 20'49	
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





















































































































































































max. Earth dist.	4080 Dec 15 02:50	24° $\overline{\text{A}}$ 21'02	19.71024 AU	minimum elong	4088 Jan 16 00:48	25° $\overline{\text{C}}$ 40'22	0°22'59
desc. node	4081 Mar 27 23:58	28° $\overline{\text{A}}$ 37'25		max. Earth dist.	4088 Jan 16 05:40	25° $\overline{\text{C}}$ 41'06	20.12840 AU
retrograde	4081 Apr 01 10:39	28° $\overline{\text{A}}$ 37'57		retrograde	4088 May 02 08:59	29° $\overline{\text{C}}$ 50'28	
opposition	4081 Jun 15 07:22	26° $\overline{\text{A}}$ 37'23	0°00'-51	opposition	4088 Jul 17 11:18	27° $\overline{\text{C}}$ 50'41	0°-27'-8
min. Earth dist.	4081 Jun 15 12:15	26° $\overline{\text{A}}$ 36'52	17.73820 AU	min. Earth dist.	4088 Jul 17 05:02	27° $\overline{\text{C}}$ 51'20	18.15983 AU
direct	4081 Aug 31 11:04	24° $\overline{\text{A}}$ 33'47		direct	4088 Oct 02 16:05	25° $\overline{\text{C}}$ 49'17	
conjunction	4081 Dec 20 02:48	28° $\overline{\text{A}}$ 55'34	0°-2'-41	conjunction	4089 Jan 19 13:25	0° $\approx$ 01'05	0°-25'-55
minimum elong	4081 Dec 20 02:47	28° $\overline{\text{A}}$ 55'34	0°02'42	minimum elong	4089 Jan 19 13:25	0° $\approx$ 01'05	0°25'55
behind sun begin	4081 Dec 19 20:12	28° $\overline{\text{A}}$ 54'34			4089 Jan 19 06:16	0° $\approx$	
behind sun end	4081 Dec 20 09:22	28° $\overline{\text{A}}$ 56'34		max. Earth dist.	4089 Jan 19 21:05	0° $\approx$ 02'14	20.19168 AU
max. Earth dist.	4081 Dec 19 22:00	28° $\overline{\text{A}}$ 54'52	19.76690 AU	retrograde	4089 May 06 23:43	4° $\approx$ 10'19	
	4082 Jan 06 14:20	0° $\overline{\text{C}}$		opposition	4089 Jul 22 05:39	2° $\approx$ 10'40	0°-30'-18
retrograde	4082 Apr 06 06:01	3° $\overline{\text{C}}$ 10'53		min. Earth dist.	4089 Jul 21 21:33	2° $\approx$ 11'29	18.22353 AU
opposition	4082 Jun 20 06:10	1° $\overline{\text{C}}$ 10'28	0°-4'-53	direct	4089 Oct 07 10:20	0° $\approx$ 09'37	
min. Earth dist.	4082 Jun 20 08:49	1° $\overline{\text{C}}$ 10'12	17.79569 AU				
	4082 Jul 20 03:50	30° $\overline{\text{R}}$ $\overline{\text{A}}$		conjunction	4090 Jan 24 01:05	4° $\approx$ 19'58	0°-28'-41
direct	4082 Sep 05 11:14	29° $\overline{\text{A}}$ 07'12		minimum elong	4090 Jan 24 01:05	4° $\approx$ 19'58	0°28'42
	4082 Oct 21 02:20	0° $\overline{\text{C}}$		max. Earth dist.	4090 Jan 24 09:33	4° $\approx$ 21'15	20.25576 AU
conjunction	4082 Dec 24 20:49	3° $\overline{\text{C}}$ 27'40	0°-6'-17	retrograde	4090 May 11 13:41	8° $\approx$ 28'26	
minimum elong	4082 Dec 24 20:50	3° $\overline{\text{C}}$ 27'41	0°06'18	opposition	4090 Jul 26 23:30	6° $\approx$ 28'54	0°-33'-16
behind sun begin	4082 Dec 24 14:35	3° $\overline{\text{C}}$ 26'44		min. Earth dist.	4090 Jul 26 13:57	6° $\approx$ 29'52	18.28797 AU
behind sun end	4082 Dec 25 03:04	3° $\overline{\text{C}}$ 28'37		direct	4090 Oct 12 01:57	4° $\approx$ 28'13	
max. Earth dist.	4082 Dec 24 18:36	3° $\overline{\text{C}}$ 27'22	19.82502 AU	conjunction	4091 Jan 28 12:05	8° $\approx$ 37'11	0°-31'-17
retrograde	4083 Apr 10 23:41	7° $\overline{\text{C}}$ 42'07		minimum elong	4091 Jan 28 12:05	8° $\approx$ 37'11	0°31'17
opposition	4083 Jun 25 04:36	5° $\overline{\text{C}}$ 41'53	0°-8'-53	max. Earth dist.	4091 Jan 28 23:08	8° $\approx$ 38'51	20.32028 AU
min. Earth dist.	4083 Jun 25 06:32	5° $\overline{\text{C}}$ 41'41	17.85435 AU	retrograde	4091 May 16 04:06	12° $\approx$ 44'53	
direct	4083 Sep 10 10:14	3° $\overline{\text{C}}$ 38'57		opposition	4091 Jul 31 16:40	10° $\approx$ 45'29	0°-36'-2
conjunction	4083 Dec 29 13:52	7° $\overline{\text{C}}$ 58'02	0°-9'-49	min. Earth dist.	4091 Jul 31 05:11	10° $\approx$ 46'40	18.35241 AU
minimum elong	4083 Dec 29 13:52	7° $\overline{\text{C}}$ 58'02	0°09'49	direct	4091 Oct 16 19:17	8° $\approx$ 45'13	
behind sun begin	4083 Dec 29 08:28	7° $\overline{\text{C}}$ 57'14		conjunction	4092 Feb 01 22:19	12° $\approx$ 52'49	0°-33'-41
behind sun end	4083 Dec 29 19:17	7° $\overline{\text{C}}$ 58'51		minimum elong	4092 Feb 01 22:19	12° $\approx$ 52'49	0°33'42
max. Earth dist.	4083 Dec 29 12:02	7° $\overline{\text{C}}$ 57'46	19.88425 AU	max. Earth dist.	4092 Feb 02 10:09	12° $\approx$ 54'35	20.38457 AU
retrograde	4084 Apr 14 17:46	12° $\overline{\text{C}}$ 11'38			4092 Mar 09 23:49	15° $\approx$	
opposition	4084 Jun 29 02:27	10° $\overline{\text{C}}$ 11'31	0°-12'-47	retrograde	4092 May 19 16:49	16° $\approx$ 59'49	
min. Earth dist.	4084 Jun 29 02:19	10° $\overline{\text{C}}$ 11'31	17.91404 AU	opposition	4092 Aug 04 09:17	15° $\approx$ 00'32	0°-38'-35
direct	4084 Sep 14 08:40	8° $\overline{\text{C}}$ 08'53		min. Earth dist.	4092 Aug 03 20:51	15° $\approx$ 01'48	18.41651 AU
conjunction	4085 Jan 02 06:03	12° $\overline{\text{C}}$ 26'34	0°-13'-17		4092 Aug 04 14:35	15° $\approx$	
minimum elong	4085 Jan 02 06:02	12° $\overline{\text{C}}$ 26'34	0°13'18	direct	4092 Oct 20 09:13	13° $\approx$ 00'39	
behind sun begin	4085 Jan 02 02:09	12° $\overline{\text{C}}$ 25'59			4092 Dec 30 05:01	15° $\approx$	
behind sun end	4085 Jan 02 09:56	12° $\overline{\text{C}}$ 27'09		conjunction	4093 Feb 05 08:02	17° $\approx$ 06'55	0°-35'-53
max. Earth dist.	4085 Jan 02 06:51	12° $\overline{\text{C}}$ 26'41	19.94426 AU	minimum elong	4093 Feb 05 08:02	17° $\approx$ 06'55	0°35'54
retrograde	4085 Apr 19 10:02	16° $\overline{\text{C}}$ 39'16		max. Earth dist.	4093 Feb 05 22:03	17° $\approx$ 09'01	20.44811 AU
opposition	4085 Jul 03 23:43	14° $\overline{\text{C}}$ 39'16	0°-16'-35	retrograde	4093 May 24 06:20	21° $\approx$ 13'13	
min. Earth dist.	4085 Jul 03 22:34	14° $\overline{\text{C}}$ 39'23	17.97429 AU	min. Earth dist.	4093 Aug 08 10:56	19° $\approx$ 15'32	18.47928 AU
direct	4085 Sep 19 06:07	12° $\overline{\text{C}}$ 36'57		opposition	4093 Aug 09 01:10	19° $\approx$ 14'06	0°-40'-54
conjunction	4086 Jan 06 21:14	16° $\overline{\text{C}}$ 53'09	0°-16'-38	direct	4093 Oct 25 01:29	17° $\approx$ 14'35	
minimum elong	4086 Jan 06 21:14	16° $\overline{\text{C}}$ 53'09	0°16'38	conjunction	4094 Feb 09 17:06	21° $\approx$ 19'34	0°-37'-54
max. Earth dist.	4086 Jan 06 22:30	16° $\overline{\text{C}}$ 53'21	20.00487 AU	minimum elong	4094 Feb 09 17:06	21° $\approx$ 19'34	0°37'55
retrograde	4086 Apr 24 02:34	21° $\overline{\text{C}}$ 04'58		max. Earth dist.	4094 Feb 10 07:36	21° $\approx$ 21'44	20.50996 AU
opposition	4086 Jul 08 20:06	19° $\overline{\text{C}}$ 05'02	0°-20'-15	retrograde	4094 May 28 17:56	25° $\approx$ 25'14	
min. Earth dist.	4086 Jul 08 17:10	19° $\overline{\text{C}}$ 05'21	18.03529 AU	opposition	4094 Aug 13 16:29	23° $\approx$ 26'13	0°-43'00
direct	4086 Sep 24 02:26	17° $\overline{\text{C}}$ 03'01		min. Earth dist.	4094 Aug 13 01:50	23° $\approx$ 27'42	18.54025 AU
conjunction	4087 Jan 11 11:37	21° $\overline{\text{C}}$ 17'46	0°-19'-53	direct	4094 Oct 29 13:58	21° $\approx$ 27'04	
minimum elong	4087 Jan 11 11:37	21° $\overline{\text{C}}$ 17'46	0°19'54	conjunction	4095 Feb 14 01:47	25° $\approx$ 30'49	0°-39'-41
max. Earth dist.	4087 Jan 11 15:40	21° $\overline{\text{C}}$ 18'22	20.06620 AU	minimum elong	4095 Feb 14 01:47	25° $\approx$ 30'49	0°39'42
retrograde	4087 Apr 28 17:46	25° $\overline{\text{C}}$ 28'41		max. Earth dist.	4095 Feb 14 18:01	25° $\approx$ 33'13	20.56970 AU
opposition	4087 Jul 13 16:02	23° $\overline{\text{C}}$ 28'51	0°-23'-47	retrograde	4095 Jun 02 06:01	29° $\approx$ 35'51	
min. Earth dist.	4087 Jul 13 11:35	23° $\overline{\text{C}}$ 29'18	18.09699 AU	opposition	4095 Aug 18 07:14	27° $\approx$ 36'56	0°-44'-51
direct	4087 Sep 28 22:06	21° $\overline{\text{C}}$ 27'07		min. Earth dist.	4095 Aug 17 14:52	27° $\approx$ 38'35	18.59860 AU
conjunction	4088 Jan 16 00:48	25° $\overline{\text{C}}$ 40'22	0°-22'-58	direct	4095 Nov 03 05:05	25° $\approx$ 38'09	

conjunction	4096 Feb 18 09:46	29° <del>40</del> '40	0°-41'-16
minimum elong	4096 Feb 18 09:46	29° <del>40</del> '40	0°41'16
max. Earth dist.	4096 Feb 19 02:18	29° <del>43</del> '07	20.62649 AU
	4096 Feb 23 20:30	0° <del>4</del>	
retrograde	4096 Jun 05 16:57	3° <del>4</del> '45'08	
opposition	4096 Aug 21 21:31	1° <del>4</del> '46'17	0°-46'-28
min. Earth dist.	4096 Aug 21 05:08	1° <del>4</del> '47'56	18.65387 AU
	4096 Oct 15 10:33	30° <del>4</del>	
direct	4096 Nov 06 16:18	29° <del>4</del> '47'47	
	4096 Nov 28 13:56	0° <del>4</del>	
conjunction	4097 Feb 21 17:32	3° <del>4</del> '49'10	0°-42'-37
minimum elong	4097 Feb 21 17:32	3° <del>4</del> '49'10	0°42'38
max. Earth dist.	4097 Feb 22 11:18	3° <del>4</del> '51'47	20.67992 AU
retrograde	4097 Jun 10 03:39	7° <del>4</del> '53'03	
opposition	4097 Aug 26 10:50	5° <del>4</del> '54'15	0°-47'-50
min. Earth dist.	4097 Aug 25 16:58	5° <del>4</del> '56'03	18.70537 AU
direct	4097 Nov 11 05:40	3° <del>4</del> '56'01	
conjunction	4098 Feb 26 00:42	7° <del>4</del> '56'17	0°-43'-45
minimum elong	4098 Feb 26 00:42	7° <del>4</del> '56'17	0°43'45
max. Earth dist.	4098 Feb 26 18:32	7° <del>4</del> '58'54	20.72942 AU
retrograde	4098 Jun 14 13:26	11° <del>4</del> '59'39	
opposition	4098 Aug 30 23:51	10° <del>4</del> '00'51	0°-48'-56
min. Earth dist.	4098 Aug 30 06:16	10° <del>4</del> '02'37	18.75302 AU
direct	4098 Nov 15 15:46	8° <del>4</del> '02'50	
conjunction	4099 Mar 02 07:20	12° <del>4</del> '02'01	0°-44'-38
minimum elong	4099 Mar 02 07:20	12° <del>4</del> '02'01	0°44'40
max. Earth dist.	4099 Mar 03 02:21	12° <del>4</del> '04'48	20.77516 AU
retrograde	4099 Jun 18 23:19	16° <del>4</del> '04'55	
opposition	4099 Sep 04 12:06	14° <del>4</del> '06'05	0°-49'-47
min. Earth dist.	4099 Sep 03 16:56	14° <del>4</del> '08'00	18.79685 AU
direct	4099 Nov 20 03:34	12° <del>4</del> '08'15	
conjunction	4100 Mar 06 13:32	16° <del>4</del> '06'26	0°-45'-18
minimum elong	4100 Mar 06 13:32	16° <del>4</del> '06'26	0°45'19
max. Earth dist.	4100 Mar 07 08:50	16° <del>4</del> '09'15	20.81719 AU
retrograde	4100 Jun 23 07:52	20° <del>4</del> '08'53	
opposition	4100 Sep 08 23:47	18° <del>4</del> '10'00	0°-50'-23
min. Earth dist.	4100 Sep 08 05:00	18° <del>4</del> '11'53	18.83736 AU
direct	4100 Nov 24 12:15	16° <del>4</del> '12'21	

conjunction	4100 Mar 06 13:32	16° <del>✕</del> 06'26	0°-45'-18	direct	4107 Dec 23 16:39	14° <del>Υ</del> 18'03	
minimum elong	4100 Mar 06 13:32	16° <del>✕</del> 06'26	0°45'19				
max. Earth dist.	4100 Mar 07 08:50	16° <del>✕</del> 09'15	20.81719 AU	conjunction	4108 Apr 07 07:24	18° <del>Υ</del> 11'23	0°-42'-29
retrograde	4100 Jun 23 07:52	20° <del>✕</del> 08'53		minimum elong	4108 Apr 07 07:24	18° <del>Υ</del> 11'23	0°42'31
opposition	4100 Sep 08 23:47	18° <del>✕</del> 10'00	0°-50'-23	max. Earth dist.	4108 Apr 08 05:55	18° <del>Υ</del> 14'37	21.04028 AU
min. Earth dist.	4100 Sep 08 05:00	18° <del>✕</del> 11'53	18.83736 AU	retrograde	4108 Jul 26 03:07	22° <del>Υ</del> 12'34	
direct	4100 Nov 24 12:15	16° <del>✕</del> 12'21		min. Earth dist.	4108 Oct 11 07:26	20° <del>Υ</del> 15'48	19.04643 AU
				opposition	4108 Oct 12 04:05	20° <del>Υ</del> 13'44	0°-46'-14
conjunction	4101 Mar 10 19:25	20° <del>✕</del> 09'36	0°-45'-44	direct	4108 Dec 26 21:43	18° <del>Υ</del> 17'26	
minimum elong	4101 Mar 10 19:25	20° <del>✕</del> 09'36	0°45'45				
max. Earth dist.	4101 Mar 11 15:52	20° <del>✕</del> 12'35	20.85612 AU	conjunction	4109 Apr 11 12:50	22° <del>Υ</del> 10'33	0°-41'-11
retrograde	4101 Jun 27 17:25	24° <del>✕</del> 11'39		minimum elong	4109 Apr 11 12:50	22° <del>Υ</del> 10'33	0°41'12
opposition	4101 Sep 13 10:43	22° <del>✕</del> 12'45	0°-50'-43	max. Earth dist.	4109 Apr 12 11:09	22° <del>Υ</del> 13'45	21.05047 AU
min. Earth dist.	4101 Sep 12 14:18	22° <del>✕</del> 14'47	18.87474 AU	retrograde	4109 Jul 30 12:53	26° <del>Υ</del> 11'49	
direct	4101 Nov 28 22:30	20° <del>✕</del> 15'16		opposition	4109 Oct 16 12:13	24° <del>Υ</del> 12'58	0°-44'-40
				min. Earth dist.	4109 Oct 15 15:04	24° <del>Υ</del> 15'05	19.05389 AU
conjunction	4102 Mar 15 00:50	24° <del>✕</del> 11'41	0°-45'-56	direct	4109 Dec 31 04:21	22° <del>Υ</del> 16'43	
minimum elong	4102 Mar 15 00:50	24° <del>✕</del> 11'41	0°45'57				
max. Earth dist.	4102 Mar 15 21:37	24° <del>✕</del> 14'42	20.89195 AU	conjunction	4110 Apr 15 18:16	26° <del>Υ</del> 09'42	0°-39'-40
retrograde	4102 Jul 02 01:00	28° <del>✕</del> 13'26		minimum elong	4110 Apr 15 18:17	26° <del>Υ</del> 09'42	0°39'41
opposition	4102 Sep 17 21:18	26° <del>✕</del> 14'30	0°-50'-48	max. Earth dist.	4110 Apr 16 15:45	26° <del>Υ</del> 12'47	21.05510 AU
min. Earth dist.	4102 Sep 17 01:17	26° <del>✕</del> 16'30	18.90926 AU		4110 Jul 13 12:07	0° <del>♄</del>	
direct	4102 Dec 03 05:47	24° <del>✕</del> 17'12		retrograde	4110 Aug 03 20:10	0° <del>♄</del> 11'07	
					4110 Aug 25 13:15	30° <del>♄</del>	
conjunction	4103 Mar 19 06:12	28° <del>✕</del> 12'52	0°-45'-54	opposition	4110 Oct 20 20:23	28° <del>Υ</del> 12'11	0°-42'-53
minimum elong	4103 Mar 19 06:12	28° <del>✕</del> 12'52	0°45'55	min. Earth dist.	4110 Oct 20 00:52	28° <del>Υ</del> 14'08	19.05573 AU
max. Earth dist.	4103 Mar 20 03:59	28° <del>✕</del> 16'02	20.92510 AU	direct	4111 Jan 04 09:09	26° <del>Υ</del> 15'58	
	4103 Apr 20 03:19	0° <del>Υ</del>			4111 Apr 17 10:13	0° <del>♄</del>	
retrograde	4103 Jul 06 10:35	2° <del>Υ</del> 14'22					
min. Earth dist.	4103 Sep 21 09:41	0° <del>Υ</del> 17'35	18.94095 AU	conjunction	4111 Apr 20 00:05	0° <del>♄</del> 08'52	0°-37'-58
opposition	4103 Sep 22 07:16	0° <del>Υ</del> 15'25	0°-50'-38	minimum elong	4111 Apr 20 00:05	0° <del>♄</del> 08'52	0°37'59
	4103 Sep 28 18:00	30° <del>♄</del>		max. Earth dist.	4111 Apr 20 21:05	0° <del>♄</del> 11'52	21.05423 AU
direct	4103 Dec 07 14:40	28° <del>✕</del> 18'19		retrograde	4111 Aug 08 06:16	4° <del>♄</del> 10'25	
	4104 Feb 10 17:18	0° <del>Υ</del>		min. Earth dist.	4111 Oct 24 08:20	2° <del>♄</del> 13'23	19.05201 AU
				opposition	4111 Oct 25 04:08	2° <del>♄</del> 11'23	0°-40'-54
conjunction	4104 Mar 22 11:12	2° <del>Υ</del> 13'21	0°-45'-39	direct	4112 Jan 08 16:03	0° <del>♄</del> 15'08	
minimum elong	4104 Mar 22 11:12	2° <del>Υ</del> 13'21	0°45'40				
max. Earth dist.	4104 Mar 23 09:12	2° <del>Υ</del> 16'31	20.95524 AU	conjunction	4112 Apr 23 05:58	4° <del>♄</del> 08'00	0°-36'-4
retrograde	4104 Jul 09 17:41	6° <del>Υ</del> 14'40		minimum elong	4112 Apr 23 05:58	4° <del>♄</del> 08'00	0°36'05
opposition	4104 Sep 25 16:59	4° <del>Υ</del> 15'44	0°-50'-13	max. Earth dist.	4112 Apr 24 02:03	4° <del>♄</del> 10'52	21.04778 AU
min. Earth dist.	4104 Sep 24 20:04	4° <del>Υ</del> 17'50	18.96959 AU	retrograde	4112 Aug 11 13:16	8° <del>♄</del> 09'45	
direct	4104 Dec 10 20:49	2° <del>Υ</del> 18'49		opposition	4112 Oct 28 11:51	6° <del>♄</del> 10'35	0°-38'-43
				min. Earth dist.	4112 Oct 27 17:49	6° <del>♄</del> 12'24	19.04293 AU
conjunction	4105 Mar 26 16:18	6° <del>Υ</del> 13'17	0°-45'-11	direct	4113 Jan 11 20:25	4° <del>♄</del> 14'14	
minimum elong	4105 Mar 26 16:18	6° <del>Υ</del> 13'17	0°45'11				
max. Earth dist.	4105 Mar 27 14:58	6° <del>Υ</del> 16'33	20.98228 AU	conjunction	4113 Apr 27 12:08	8° <del>♄</del> 07'10	0°-34'00
retrograde	4105 Jul 14 03:10	10° <del>Υ</del> 14'28		minimum elong	4113 Apr 27 12:08	8° <del>♄</del> 07'10	0°34'02
min. Earth dist.	4105 Sep 29 03:51	8° <del>Υ</del> 17'47	18.99484 AU	max. Earth dist.	4113 Apr 28 07:42	8° <del>♄</del> 09'58	21.03635 AU
opposition	4105 Sep 30 02:00	8° <del>Υ</del> 15'35	0°-49'-34	retrograde	4113 Aug 15 23:11	12° <del>♄</del> 09'08	
direct	4105 Dec 15 04:22	6° <del>Υ</del> 18'50		opposition	4113 Nov 01 19:07	10° <del>♄</del> 09'48	0°-36'-20
				min. Earth dist.	4113 Nov 01 00:51	10° <del>♄</del> 11'39	19.02913 AU
conjunction	4106 Mar 30 21:15	10° <del>Υ</del> 12'51	0°-44'-29	direct	4114 Jan 16 03:29	8° <del>♄</del> 13'21	
minimum elong	4106 Mar 30 21:16	10° <del>Υ</del> 12'51	0°44'31				
max. Earth dist.	4106 Mar 31 19:50	10° <del>Υ</del> 16'06	21.00567 AU	conjunction	4114 May 01 18:27	12° <del>♄</del> 06'26	0°-31'-46
retrograde	4106 Jul 18 10:11	14° <del>Υ</del> 13'59		minimum elong	4114 May 01 18:27	12° <del>♄</del> 06'26	0°31'47
opposition	4106 Oct 04 11:03	12° <del>Υ</del> 15'07	0°-48'-41	max. Earth dist.	4114 May 02 13:13	12° <del>♄</del> 09'06	21.02036 AU
min. Earth dist.	4106 Oct 03 13:53	12° <del>Υ</del> 17'14	19.01637 AU		4114 Jun 27 00:56	15° <del>♄</del>	
direct	4106 Dec 19 09:54	10° <del>Υ</del> 18'33		retrograde	4114 Aug 20 06:34	16° <del>♄</del> 08'40	
					4114 Oct 15 10:16	15° <del>♄</del>	
conjunction	4107 Apr 04 02:14	14° <del>Υ</del> 12'11	0°-43'-36	min. Earth dist.	4114 Nov 05 09:55	14° <del>♄</del> 10'52	19.01115 AU
minimum elong	4107 Apr 04 02:14	14° <del>Υ</del> 12'11	0°43'36	opposition	4114 Nov 06 02:32	14° <del>♄</del> 09'11	0°-33'-46
max. Earth dist.	4107 Apr 05 01:11	14° <del>Υ</del> 15'29	21.02524 AU	direct	4115 Jan 20 07:40	12° <del>♄</del> 12'36	
retrograde	4107 Jul 22 19:48	18° <del>Υ</del> 13'19			4115 Apr 16 14:43	15° <del>♄</del>	
opposition	4107 Oct 08 19:41	16° <del>Υ</del> 14'28	0°-47'-34				
min. Earth dist.	4107 Oct 07 21:35	16° <del>Υ</del> 16'41	19.03374 AU	conjunction	4115 May 06 01:03	16° <del>♄</del> 05'54	0°-29'-23

minimum elong	4115 May 06 01:04	16°♄05'54	0°29'24	retrograde	4122 Sep 22 16:27	18°♄29'10	
max. Earth dist.	4115 May 06 19:21	16°♄08'31	21.00059 AU	opposition	4122 Dec 08 15:32	16°♄28'50	0°-8'-18
retrograde	4115 Aug 24 16:26	20°♄08'30		min. Earth dist.	4122 Dec 08 07:07	16°♄29'42	18.74390 AU
opposition	4115 Nov 10 09:44	18°♄08'51	0°-31'-3	direct	4123 Feb 21 08:47	14°♄30'59	
min. Earth dist.	4115 Nov 09 16:53	18°♄10'33	18.98950 AU				
direct	4116 Jan 24 14:39	16°♄12'07		conjunction	4123 Jun 08 01:41	18°♄29'41	0°-5'-57
				minimum elong	4123 Jun 08 01:41	18°♄29'41	0°05'58
conjunction	4116 May 09 08:08	20°♄05'46	0°-26'-51	behind sun begin	4123 Jun 07 19:18	18°♄28'47	
minimum elong	4116 May 09 08:08	20°♄05'46	0°26'52	behind sun end	4123 Jun 08 08:03	18°♄30'35	
max. Earth dist.	4116 May 10 01:33	20°♄08'15	20.97713 AU	max. Earth dist.	4123 Jun 08 10:21	18°♄30'55	20.71953 AU
retrograde	4116 Aug 28 00:41	24°♄08'45		retrograde	4123 Sep 27 06:06	22°♄37'00	
opposition	4116 Nov 13 16:54	22°♄08'58	0°-28'-10	opposition	4123 Dec 13 00:18	20°♄36'32	0°-4'-40
min. Earth dist.	4116 Nov 13 01:48	22°♄10'30	18.96436 AU	min. Earth dist.	4123 Dec 12 16:47	20°♄37'19	18.69391 AU
direct	4117 Jan 27 19:06	20°♄12'05		direct	4124 Feb 25 17:46	18°♄38'25	
conjunction	4117 May 13 15:41	24°♄06'11	0°-24'-11	conjunction	4124 Jun 11 14:03	22°♄38'09	0°-2'-39
minimum elong	4117 May 13 15:41	24°♄06'11	0°24'12	minimum elong	4124 Jun 11 14:03	22°♄38'09	0°02'40
max. Earth dist.	4117 May 14 08:20	24°♄08'34	20.95046 AU	behind sun begin	4124 Jun 11 07:22	22°♄37'12	
retrograde	4117 Sep 01 10:56	28°♄09'37		behind sun end	4124 Jun 11 20:45	22°♄39'05	
min. Earth dist.	4117 Nov 17 08:56	26°♄11'16	18.93601 AU	max. Earth dist.	4124 Jun 11 21:07	22°♄39'08	20.66739 AU
opposition	4117 Nov 18 00:09	26°♄09'43	0°-25'-9	retrograde	4124 Sep 30 17:06	26°♄46'12	
direct	4118 Feb 01 01:36	24°♄12'42		opposition	4124 Dec 16 09:23	24°♄45'35	0°-1'00
				min. Earth dist.	4124 Dec 16 04:11	24°♄46'07	18.63976 AU
conjunction	4118 May 17 23:32	28°♄07'19	0°-21'-23	direct	4125 Mar 01 01:05	22°♄47'09	
minimum elong	4118 May 17 23:32	28°♄07'19	0°21'24	asc. node	4125 Mar 27 13:46	23°♄05'29	
max. Earth dist.	4118 May 18 15:17	28°♄09'34	20.92047 AU				
	4118 Jun 20 23:29	0°♄		conjunction	4125 Jun 16 03:05	26°♄47'57	0°00'45
retrograde	4118 Sep 05 19:58	2°♄11'17		minimum elong	4125 Jun 16 03:03	26°♄47'57	0°00'45
opposition	4118 Nov 22 07:41	0°♄11'17	0°-22'00	behind sun begin	4125 Jun 15 20:21	26°♄47'00	
min. Earth dist.	4118 Nov 21 18:12	0°♄12'39	18.90444 AU	behind sun end	4125 Jun 16 09:45	26°♄48'54	
	4118 Nov 26 22:21	30°♄		max. Earth dist.	4125 Jun 16 07:56	26°♄48'37	20.61158 AU
direct	4119 Feb 05 06:47	28°♄14'07			4125 Aug 17 19:42	0°♄	
	4119 Apr 12 17:09	0°♄		retrograde	4125 Oct 05 07:23	0°♄56'46	
					4125 Nov 23 17:04	30°♄	
conjunction	4119 May 22 08:09	2°♄09'22	0°-18'-28	opposition	4125 Dec 20 18:50	28°♄55'57	0°02'41
minimum elong	4119 May 22 08:09	2°♄09'22	0°18'30	min. Earth dist.	4125 Dec 20 14:35	28°♄56'24	18.58223 AU
max. Earth dist.	4119 May 22 22:53	2°♄11'29	20.88747 AU	direct	4126 Mar 05 11:35	26°♄57'10	
retrograde	4119 Sep 10 07:17	6°♄13'55			4126 Jun 03 15:06	0°♄	
opposition	4119 Nov 26 15:09	4°♄13'49	0°-18'-43				
min. Earth dist.	4119 Nov 26 01:51	4°♄15'11	18.86975 AU	conjunction	4126 Jun 20 16:40	0°♄59'06	0°04'09
direct	4120 Feb 09 13:10	2°♄16'31		minimum elong	4126 Jun 20 16:40	0°♄59'06	0°04'09
				behind sun begin	4126 Jun 20 10:02	0°♄58'10	
conjunction	4120 May 25 17:27	6°♄12'31	0°-15'-28	behind sun end	4126 Jun 20 23:17	1°♄00'02	
minimum elong	4120 May 25 17:27	6°♄12'31	0°15'30	max. Earth dist.	4126 Jun 20 20:19	0°♄59'36	20.55251 AU
behind sun begin	4120 May 25 15:52	6°♄12'17		retrograde	4126 Oct 09 18:55	5°♄08'41	
behind sun end	4120 May 25 19:03	6°♄12'44		opposition	4126 Dec 25 04:44	3°♄07'41	0°06'24
max. Earth dist.	4120 May 26 07:01	6°♄14'27	20.85106 AU	min. Earth dist.	4126 Dec 25 02:33	3°♄07'55	18.52185 AU
retrograde	4120 Sep 13 17:10	10°♄17'41		direct	4127 Mar 09 20:17	1°♄08'31	
opposition	4120 Nov 29 23:02	8°♄17'31	0°-15'-20				
min. Earth dist.	4120 Nov 29 11:47	8°♄18'41	18.83157 AU	conjunction	4127 Jun 25 07:08	5°♄11'38	0°07'29
direct	4121 Feb 12 19:04	6°♄20'04		minimum elong	4127 Jun 25 07:08	5°♄11'37	0°07'28
				behind sun begin	4127 Jun 25 01:01	5°♄10'45	
conjunction	4121 May 30 03:24	10°♄16'53	0°-12'-22	behind sun end	4127 Jun 25 13:15	5°♄12'30	
minimum elong	4121 May 30 03:24	10°♄16'53	0°12'23	max. Earth dist.	4127 Jun 25 08:35	5°♄11'49	20.49115 AU
behind sun begin	4121 May 29 23:03	10°♄16'16		retrograde	4127 Oct 14 09:40	9°♄22'00	
behind sun end	4121 May 30 07:45	10°♄17'30		opposition	4127 Dec 29 14:47	7°♄20'47	0°10'06
max. Earth dist.	4121 May 30 15:29	10°♄18'37	20.81118 AU	min. Earth dist.	4127 Dec 29 13:37	7°♄20'55	18.45956 AU
retrograde	4121 Sep 18 05:42	14°♄22'45		direct	4128 Mar 13 07:30	5°♄21'13	
opposition	4121 Dec 04 07:02	12°♄22'30	0°-11'-52				
min. Earth dist.	4121 Dec 03 20:21	12°♄23'36	18.78975 AU	conjunction	4128 Jun 28 22:27	9°♄25'35	0°10'47
direct	4122 Feb 17 02:19	10°♄24'52		minimum elong	4128 Jun 28 22:27	9°♄25'35	0°10'47
				behind sun begin	4128 Jun 28 17:21	9°♄24'51	
conjunction	4122 Jun 03 14:10	14°♄22'36	0°-9'-11	behind sun end	4128 Jun 29 03:33	9°♄26'18	
minimum elong	4122 Jun 03 14:10	14°♄22'36	0°09'13	max. Earth dist.	4128 Jun 28 22:53	9°♄25'38	20.42799 AU
behind sun begin	4122 Jun 03 08:32	14°♄21'48		retrograde	4128 Oct 17 22:43	13°♄36'45	
behind sun end	4122 Jun 03 19:48	14°♄23'23		opposition	4129 Jan 02 01:26	11°♄35'21	0°13'46
max. Earth dist.	4122 Jun 04 00:49	14°♄24'07	20.76735 AU	min. Earth dist.	4129 Jan 02 02:04	11°♄35'17	18.39582 AU

direct	4129 Mar 17 17:37	9°  35°23		retrograde	4136 Nov 22 18:46	18°  36°29	
				opposition	4137 Feb 05 11:17	16°  34°13	0°39'23
conjunction	4129 Jul 03 14:16	13°  41°01	0°14'03	min. Earth dist.	4137 Feb 05 22:13	16°  33°03	17.89167 AU
minimum elong	4129 Jul 03 14:16	13°  41°01	0°14'03		4137 Mar 19 00:40	15°  R 	
behind sun begin	4129 Jul 03 11:05	13°  40°34		direct	4137 Apr 21 06:22	14°  31°25	
behind sun end	4129 Jul 03 17:28	13°  41°29			4137 May 24 04:10	15°  R	
max. Earth dist.	4129 Jul 03 12:27	13°  40°46	20.36390 AU				
retrograde	4129 Oct 22 14:06	17°  53°01		conjunction	4137 Aug 09 05:20	18°  48°41	0°36'33
opposition	4130 Jan 06 12:31	15°  51°26	0°17'22	minimum elong	4137 Aug 09 05:19	18°  48°41	0°36'32
min. Earth dist.	4130 Jan 06 14:04	15°  51°16	18.33150 AU	max. Earth dist.	4137 Aug 08 14:21	18°  46°25	19.86119 AU
direct	4130 Mar 22 05:26	13°  51°03		retrograde	4137 Nov 27 14:44	23°  07°23	
				opposition	4138 Feb 10 03:42	21°  05°01	0°41'48
conjunction	4130 Jul 08 07:08	17°  58°03	0°17'16	min. Earth dist.	4138 Feb 10 16:30	21°  03°38	17.83101 AU
minimum elong	4130 Jul 08 07:08	17°  58°03	0°17'15	direct	4138 Apr 25 23:33	19°  01°50	
max. Earth dist.	4130 Jul 08 04:36	17°  57°41	20.29936 AU				
retrograde	4130 Oct 27 05:00	22°  10°53		conjunction	4138 Aug 14 05:08	23°  20°33	0°38'37
opposition	4131 Jan 11 00:08	20°  09°08	0°20'54	minimum elong	4138 Aug 14 05:08	23°  20°33	0°38'37
min. Earth dist.	4131 Jan 11 03:10	20°  08°48	18.26700 AU	max. Earth dist.	4138 Aug 13 13:37	23°  18°12	19.80092 AU
direct	4131 Mar 26 16:41	18°  08°23		retrograde	4138 Dec 02 11:38	27°  03°58	
				opposition	4139 Feb 14 20:34	25°  03°29	0°44'00
conjunction	4131 Jul 13 00:43	22°  16°45	0°20'24	min. Earth dist.	4139 Feb 15 10:08	25°  03°01	17.77131 AU
minimum elong	4131 Jul 13 00:43	22°  16°45	0°20'24	direct	4139 Apr 30 18:35	23°  03°56	
max. Earth dist.	4131 Jul 12 19:45	22°  16°02	20.23506 AU	max. Earth dist.	4139 Aug 18 11:23	27°  05°18	19.74197 AU
retrograde	4131 Oct 31 21:56	26°  30°26					
opposition	4132 Jan 15 12:19	24°  28°33	0°24'20	conjunction	4139 Aug 19 05:29	27°  05°43	0°40'27
min. Earth dist.	4132 Jan 15 16:26	24°  28°07	18.20293 AU	minimum elong	4139 Aug 19 05:29	27°  05°43	0°40'26
direct	4132 Mar 30 05:26	22°  27°25			4139 Sep 24 03:08	0°  R 	
				retrograde	4139 Dec 07 07:44	2°  R 	14°09
conjunction	4132 Jul 16 19:20	26°  37°14	0°23'26	opposition	4140 Feb 19 14:16	0°  R 	11°33
minimum elong	4132 Jul 16 19:20	26°  37°14	0°23'26	min. Earth dist.	4140 Feb 20 05:45	0°  R 	09°52
max. Earth dist.	4132 Jul 16 13:49	26°  36°26	20.17116 AU		4140 Feb 24 00:48	30°  R 	
	4132 Sep 20 06:45	0°  R		direct	4140 May 04 13:00	28°  07°38	
retrograde	4132 Nov 04 14:36	0°  R  51°46			4140 Jul 11 01:49	0°  R 	
	4132 Dec 20 18:19	30°  R 					
opposition	4133 Jan 19 01:07	28°  49°48	0°27'39	conjunction	4140 Aug 23 06:27	2°  R 	29°06
min. Earth dist.	4133 Jan 19 06:32	28°  49°13	18.13937 AU	minimum elong	4140 Aug 23 06:27	2°  R 	29°06
direct	4133 Apr 03 17:54	26°  48°20		max. Earth dist.	4140 Aug 22 12:01	2°  R 	26°17
	4133 Jul 04 18:42	0°  R		retrograde	4140 Dec 11 05:36	6°  R 	49°49
conjunction	4133 Jul 21 14:39	0°  R  59°37	0°26'22	opposition	4141 Feb 23 08:27	4°  R 	47°07
minimum elong	4133 Jul 21 14:39	0°  R  59°37	0°26'22	min. Earth dist.	4141 Feb 24 00:11	4°  R 	45°24
max. Earth dist.	4133 Jul 21 06:35	0°  R  58°25	20.10808 AU	direct	4141 May 09 10:19	2°  R 	42°50
retrograde	4133 Nov 09 09:07	5°  R  15°02		max. Earth dist.	4141 Aug 27 11:34	7°  R 	02°29
opposition	4134 Jan 23 14:35	3°  R  12°58	0°30'50				
min. Earth dist.	4134 Jan 23 21:20	3°  R  12°14	18.07673 AU	conjunction	4141 Aug 28 07:52	7°  R 	05°35
direct	4134 Apr 08 07:53	1°  R  11°10		minimum elong	4141 Aug 28 07:52	7°  R 	05°35
				retrograde	4141 Dec 16 01:55	11°  R 	26°53
conjunction	4134 Jul 26 10:59	5°  R  23°57	0°29'09	opposition	4142 Feb 28 03:21	9°  R 	24°05
minimum elong	4134 Jul 26 10:58	5°  R  23°57	0°29'09	min. Earth dist.	4142 Feb 28 20:50	9°  R 	22°11
max. Earth dist.	4134 Jul 26 02:28	5°  R  22°41	20.04570 AU	direct	4142 May 14 06:08	7°  R 	19°26
retrograde	4134 Nov 14 03:32	9°  R  40°14					
opposition	4135 Jan 28 04:48	7°  R  38°07	0°33'52	conjunction	4142 Sep 02 09:48	11°  R 	43°27
min. Earth dist.	4135 Jan 28 12:50	7°  R  37°15	18.01460 AU	minimum elong	4142 Sep 02 09:48	11°  R 	43°27
direct	4135 Apr 12 22:05	5°  R  36°00		max. Earth dist.	4142 Sep 01 13:16	11°  R 	40°18
				retrograde	4142 Dec 21 00:39	16°  R 	05°15
conjunction	4135 Jul 31 08:16	9°  R  50°17	0°31'48	opposition	4143 Mar 04 22:47	14°  R 	02°22
minimum elong	4135 Jul 31 08:16	9°  R  50°17	0°31'48	min. Earth dist.	4143 Mar 05 16:03	14°  R 	00°29
max. Earth dist.	4135 Jul 30 20:49	9°  R  48°34	19.98383 AU	direct	4143 May 19 05:34	11°  R 	57°25
retrograde	4135 Nov 18 23:06	14°  R  07°25					
opposition	4136 Feb 01 19:37	12°  R  05°13	0°36'43	conjunction	4143 Sep 07 12:12	16°  R 	22°35
min. Earth dist.	4136 Feb 02 05:27	12°  R  04°10	17.95302 AU	minimum elong	4143 Sep 07 12:12	16°  R 	22°35
direct	4136 Apr 16 13:47	10°  R  02°45		max. Earth dist.	4143 Sep 06 14:32	16°  R 	19°15
				retrograde	4143 Dec 25 21:27	20°  R 	44°52
conjunction	4136 Aug 04 06:34	14°  R  18°34	0°34'16	opposition	4144 Mar 08 18:56	18°  R 	41°56
minimum elong	4136 Aug 04 06:34	14°  R  18°34	0°34'16	min. Earth dist.	4144 Mar 09 13:41	18°  R 	39°53
max. Earth dist.	4136 Aug 03 18:30	14°  R  16°45	19.92229 AU	direct	4144 May 23 02:46	16°  R 	36°41
	4136 Aug 15 18:52	15°  R					
				conjunction	4144 Sep 11 14:56	21°  R 	02°58
							0°45'37

minimum elong	4144 Sep 11 14:56	21° <del>17</del> 02'58	0°45'36	minimum elong	4152 Oct 20 19:32	29° <del>00</del> 00'11	0°38'26
max. Earth dist.	4144 Sep 10 17:00	20° <del>17</del> 59'34	19.49217 AU	max. Earth dist.	4152 Oct 19 20:50	28° <del>00</del> 56'38	19.34350 AU
retrograde	4144 Dec 29 21:18	25° <del>17</del> 25'39			4152 Nov 05 18:58	0° <del>00</del> <del>00</del>	
opposition	4145 Mar 13 15:39	23° <del>17</del> 22'42	0°50'57	retrograde	4153 Feb 05 20:24	3° <del>00</del> <del>00</del> 23'36	
min. Earth dist.	4145 Mar 14 09:40	23° <del>17</del> 20'44	17.47364 AU	opposition	4153 Apr 20 09:08	1° <del>00</del> 21'18	0°41'42
direct	4145 May 28 03:28	21° <del>17</del> 17'15		min. Earth dist.	4153 Apr 21 03:57	1° <del>00</del> 19'15	17.34452 AU
					4153 May 24 07:03	30° <del>00</del> <del>00</del> <del>00</del> <del>00</del>	
conjunction	4145 Sep 16 17:52	25° <del>17</del> 44'31	0°45'47	direct	4153 Jul 05 14:16	29° <del>00</del> 15'17	
minimum elong	4145 Sep 16 17:52	25° <del>17</del> 44'31	0°45'46		4153 Aug 16 01:59	0° <del>00</del> <del>00</del>	
max. Earth dist.	4145 Sep 15 19:46	25° <del>17</del> 41'05	19.45575 AU				
	4145 Dec 18 09:37	0° <del>00</del> <del>00</del>		conjunction	4153 Oct 25 22:41	3° <del>00</del> 46'27	0°36'15
retrograde	4146 Jan 03 19:31	0° <del>00</del> 07'34		minimum elong	4153 Oct 25 22:41	3° <del>00</del> 46'27	0°36'16
	4146 Jan 20 10:03	30° <del>00</del> <del>00</del> <del>00</del> <del>00</del>		max. Earth dist.	4153 Oct 25 01:39	3° <del>00</del> 43'08	19.34594 AU
opposition	4146 Mar 18 13:06	28° <del>00</del> 04'39	0°50'59	retrograde	4154 Feb 10 19:58	8° <del>00</del> 09'33	
min. Earth dist.	4146 Mar 19 08:20	28° <del>00</del> 02'33	17.44003 AU	opposition	4154 Apr 25 09:58	6° <del>00</del> 07'19	0°39'06
direct	4146 Jun 02 01:47	25° <del>00</del> 59'01		min. Earth dist.	4154 Apr 26 04:24	6° <del>00</del> 05'19	17.34920 AU
	4146 Sep 14 13:54	0° <del>00</del> <del>00</del>		direct	4154 Jul 10 18:20	4° <del>00</del> 01'18	
conjunction	4146 Sep 21 21:13	0° <del>00</del> 27'13	0°45'38	max. Earth dist.	4154 Oct 30 04:00	8° <del>00</del> 28'57	19.35311 AU
minimum elong	4146 Sep 21 21:13	0° <del>00</del> 27'13	0°45'38	conjunction	4154 Oct 31 01:22	8° <del>00</del> 32'18	0°33'48
max. Earth dist.	4146 Sep 20 22:36	0° <del>00</del> 23'42	19.42496 AU	minimum elong	4154 Oct 31 01:22	8° <del>00</del> 32'18	0°33'48
retrograde	4147 Jan 08 20:09	4° <del>00</del> 50'34		retrograde	4155 Feb 15 18:37	12° <del>00</del> 55'02	
opposition	4147 Mar 23 10:50	2° <del>00</del> 47'44	0°50'39	opposition	4155 Apr 30 10:49	10° <del>00</del> 52'51	0°36'15
min. Earth dist.	4147 Mar 24 05:21	2° <del>00</del> 45'42	17.41192 AU	min. Earth dist.	4155 May 01 04:46	10° <del>00</del> 50'55	17.35890 AU
direct	4147 Jun 07 02:47	0° <del>00</del> 41'58		direct	4155 Jul 15 21:55	8° <del>00</del> 46'51	
max. Earth dist.	4147 Sep 26 02:45	5° <del>00</del> 07'34	19.39945 AU	max. Earth dist.	4155 Nov 04 08:10	13° <del>00</del> 14'31	19.36542 AU
conjunction	4147 Sep 27 00:56	5° <del>00</del> 11'01	0°45'11	conjunction	4155 Nov 05 03:37	13° <del>00</del> 17'34	0°31'08
minimum elong	4147 Sep 27 00:56	5° <del>00</del> 11'01	0°45'10	minimum elong	4155 Nov 05 03:38	13° <del>00</del> 17'34	0°31'08
retrograde	4148 Jan 13 19:56	9° <del>00</del> 34'35			4155 Dec 02 22:34	15° <del>00</del> <del>00</del>	
opposition	4148 Mar 27 09:29	7° <del>00</del> 31'52	0°50'00	retrograde	4156 Feb 20 18:03	17° <del>00</del> 39'50	
min. Earth dist.	4148 Mar 28 05:06	7° <del>00</del> 29'43	17.38903 AU	opposition	4156 May 04 11:51	15° <del>00</del> 37'44	0°33'09
direct	4148 Jun 11 02:12	5° <del>00</del> 26'02		min. Earth dist.	4156 May 05 04:34	15° <del>00</del> 35'56	17.37374 AU
max. Earth dist.	4148 Sep 30 05:32	9° <del>00</del> 52'11	19.37912 AU		4156 May 19 06:19	15° <del>00</del> <del>00</del> <del>00</del>	
conjunction	4148 Oct 01 04:31	9° <del>00</del> 55'46	0°44'26	direct	4156 Jul 20 02:16	13° <del>00</del> 31'48	
minimum elong	4148 Oct 01 04:31	9° <del>00</del> 55'46	0°44'27		4156 Sep 17 07:50	15° <del>00</del> <del>00</del>	
retrograde	4149 Jan 17 20:53	14° <del>00</del> 19'31		max. Earth dist.	4156 Nov 08 10:05	17° <del>00</del> 59'05	19.38306 AU
opposition	4149 Apr 01 08:30	12° <del>00</del> 16'53	0°49'00	conjunction	4156 Nov 09 04:59	18° <del>00</del> 02'03	0°28'15
min. Earth dist.	4149 Apr 02 03:25	12° <del>00</del> 14'49	17.37113 AU	minimum elong	4156 Nov 09 04:59	18° <del>00</del> 02'03	0°28'15
direct	4149 Jun 16 03:55	10° <del>00</del> 10'59		retrograde	4157 Feb 24 16:03	22° <del>00</del> 23'50	
max. Earth dist.	4149 Oct 05 10:23	14° <del>00</del> 37'52	19.36348 AU	opposition	4157 May 09 12:53	20° <del>00</del> 21'48	0°29'50
conjunction	4149 Oct 06 08:28	14° <del>00</del> 41'19	0°43'22	min. Earth dist.	4157 May 10 04:57	20° <del>00</del> 20'04	17.39428 AU
minimum elong	4149 Oct 06 08:28	14° <del>00</del> 41'19	0°43'22	direct	4157 Jul 25 04:55	18° <del>00</del> 15'57	
retrograde	4150 Jan 22 21:01	19° <del>00</del> 05'06		conjunction	4157 Nov 14 05:55	22° <del>00</del> 45'40	0°25'11
opposition	4150 Apr 06 08:06	17° <del>00</del> 02'34	0°47'39	minimum elong	4157 Nov 14 05:55	22° <del>00</del> 45'40	0°25'11
min. Earth dist.	4150 Apr 07 03:50	17° <del>00</del> 00'25	17.35779 AU	max. Earth dist.	4157 Nov 13 12:59	22° <del>00</del> 43'01	19.40652 AU
direct	4150 Jun 21 04:48	14° <del>00</del> 56'38		retrograde	4158 Mar 01 15:19	27° <del>00</del> 06'52	
conjunction	4150 Oct 11 12:17	19° <del>00</del> 27'23	0°42'01	opposition	4158 May 14 13:38	25° <del>00</del> 04'58	0°26'19
minimum elong	4150 Oct 11 12:17	19° <del>00</del> 27'23	0°42'01	min. Earth dist.	4158 May 15 03:47	25° <del>00</del> 03'27	17.42052 AU
max. Earth dist.	4150 Oct 10 13:06	19° <del>00</del> 23'46	19.35243 AU	direct	4158 Jul 30 08:51	22° <del>00</del> 59'15	
retrograde	4151 Jan 27 21:12	23° <del>00</del> 51'09		conjunction	4158 Nov 19 06:11	27° <del>00</del> 28'20	0°21'58
opposition	4151 Apr 11 08:04	21° <del>00</del> 48'42	0°45'59	minimum elong	4158 Nov 19 06:11	27° <del>00</del> 28'20	0°21'59
min. Earth dist.	4151 Apr 12 03:12	21° <del>00</del> 46'36	17.34895 AU	max. Earth dist.	4158 Nov 18 14:28	27° <del>00</del> 25'52	19.43572 AU
direct	4151 Jun 26 07:38	19° <del>00</del> 42'42			4158 Dec 31 23:51	0° <del>00</del> <del>00</del> <del>00</del>	
conjunction	4151 Oct 16 16:06	24° <del>00</del> 13'46	0°40'22	retrograde	4159 Mar 06 12:43	1° <del>00</del> 48'56	
minimum elong	4151 Oct 16 16:06	24° <del>00</del> 13'46	0°40'23		4159 May 14 14:51	30° <del>00</del> <del>00</del> <del>00</del>	
max. Earth dist.	4151 Oct 15 18:13	24° <del>00</del> 10'20	19.34572 AU	opposition	4159 May 19 14:34	29° <del>00</del> 47'12	0°22'38
retrograde	4152 Feb 01 21:07	28° <del>00</del> 37'23		min. Earth dist.	4159 May 20 04:05	29° <del>00</del> 45'45	17.45266 AU
opposition	4152 Apr 15 08:31	26° <del>00</del> 35'01	0°44'00	direct	4159 Aug 04 10:01	27° <del>00</del> 41'42	
min. Earth dist.	4152 Apr 16 03:55	26° <del>00</del> 32'54	17.34440 AU		4159 Oct 19 04:48	0° <del>00</del> <del>00</del> <del>00</del>	
direct	4152 Jun 30 10:33	24° <del>00</del> 29'01		conjunction	4159 Nov 24 05:39	2° <del>00</del> 47'10'02	0°18'37
conjunction	4152 Oct 20 19:32	29° <del>00</del> 00'11	0°38'27	minimum elong	4159 Nov 24 05:39	2° <del>00</del> 47'10'02	0°18'37
				max. Earth dist.	4159 Nov 23 15:42	2° <del>00</del> 47'07'51	19.47076 AU

retrograde	4160 Mar 10 12:16	6°♂29'59		conjunction	4166 Dec 26 05:11	4°♂28'05	0°-6'-41
opposition	4160 May 23 15:15	4°♂28'27	0°18'50	minimum elong	4166 Dec 26 05:10	4°♂28'05	0°06'41
min. Earth dist.	4160 May 24 02:22	4°♂27'16	17.49024 AU	behind sun begin	4166 Dec 25 23:00	4°♂27'09	
direct	4160 Aug 08 13:27	2°♂23'14		behind sun end	4166 Dec 26 11:21	4°♂29'01	
				max. Earth dist.	4166 Dec 26 02:31	4°♂27'43	19.82252 AU
conjunction	4160 Nov 28 04:30	6°♂50'43	0°15'09	retrograde	4167 Apr 12 07:51	8°♂42'36	
minimum elong	4160 Nov 28 04:29	6°♂50'43	0°15'10	opposition	4167 Jun 26 12:31	6°♂42'23	0°-9'-19
behind sun begin	4160 Nov 28 02:12	6°♂50'22		min. Earth dist.	4167 Jun 26 14:55	6°♂42'08	17.85128 AU
behind sun end	4160 Nov 28 06:47	6°♂51'04		direct	4167 Sep 11 17:50	4°♂39'27	
max. Earth dist.	4160 Nov 27 16:21	6°♂48'50	19.51094 AU				
retrograde	4161 Mar 15 08:45	11°♂10'01		conjunction	4167 Dec 30 22:06	8°♂58'38	0°-10'-13
opposition	4161 May 28 15:46	9°♂08'42	0°14'55	minimum elong	4167 Dec 30 22:06	8°♂58'38	0°10'14
min. Earth dist.	4161 May 29 02:28	9°♂07'33	17.53284 AU	behind sun begin	4167 Dec 30 16:50	8°♂57'50	
direct	4161 Aug 13 13:15	7°♂03'47		behind sun end	4167 Dec 31 03:23	8°♂59'25	
				max. Earth dist.	4167 Dec 30 19:58	8°♂58'19	19.88065 AU
conjunction	4161 Dec 03 02:32	11°♂30'21	0°11'36	retrograde	4168 Apr 16 02:12	13°♂12'17	
minimum elong	4161 Dec 03 02:32	11°♂30'21	0°11'37	opposition	4168 Jun 30 10:20	11°♂12'09	0°-13'-14
behind sun begin	4161 Dec 02 21:47	11°♂29'37		min. Earth dist.	4168 Jun 30 10:29	11°♂12'08	17.90993 AU
behind sun end	4161 Dec 03 07:17	11°♂31'04		direct	4168 Sep 15 16:46	9°♂09'29	
max. Earth dist.	4161 Dec 02 15:38	11°♂28'39	19.55580 AU				
retrograde	4162 Mar 20 08:03	15°♂48'56		conjunction	4169 Jan 03 14:22	13°♂27'14	0°-13'-41
opposition	4162 Jun 02 15:59	13°♂47'50	0°10'55	minimum elong	4169 Jan 03 14:22	13°♂27'14	0°13'40
min. Earth dist.	4162 Jun 03 00:18	13°♂46'57	17.57952 AU	behind sun begin	4169 Jan 03 10:43	13°♂26'42	
direct	4162 Aug 18 16:09	11°♂43'15		behind sun end	4169 Jan 03 18:01	13°♂27'47	
				max. Earth dist.	4169 Jan 03 14:58	13°♂27'20	19.93977 AU
conjunction	4162 Dec 07 23:55	16°♂08'47	0°08'00	retrograde	4169 Apr 20 17:54	17°♂39'58	
minimum elong	4162 Dec 07 23:55	16°♂08'47	0°08'00	opposition	4169 Jul 05 07:27	15°♂39'55	0°-17'-1
behind sun begin	4162 Dec 07 17:59	16°♂07'53		min. Earth dist.	4169 Jul 05 06:43	15°♂40'00	17.96954 AU
behind sun end	4162 Dec 08 05:51	16°♂09'41		direct	4169 Sep 20 14:04	13°♂37'33	
max. Earth dist.	4162 Dec 07 15:07	16°♂07'26	19.60424 AU				
retrograde	4163 Mar 25 03:22	20°♂26'37		conjunction	4170 Jan 08 05:31	17°♂53'49	0°-17'-2
opposition	4163 Jun 07 16:07	18°♂25'44	0°06'51	minimum elong	4170 Jan 08 05:31	17°♂53'49	0°17'03
min. Earth dist.	4163 Jun 08 00:06	18°♂24'54	17.62960 AU	max. Earth dist.	4170 Jan 08 06:42	17°♂54'00	20.00000 AU
direct	4163 Aug 23 15:40	16°♂21'30		retrograde	4170 Apr 25 10:40	22°♂05'39	
				opposition	4170 Jul 10 03:57	20°♂05'40	0°-20'-41
conjunction	4163 Dec 12 20:25	20°♂45'55	0°04'22	min. Earth dist.	4170 Jul 10 01:02	20°♂05'58	18.03044 AU
minimum elong	4163 Dec 12 20:26	20°♂45'55	0°04'23	direct	4170 Sep 25 10:17	18°♂03'34	
behind sun begin	4163 Dec 12 13:56	20°♂44'56					
behind sun end	4163 Dec 13 02:56	20°♂46'54		conjunction	4171 Jan 12 19:49	22°♂18'22	0°-20'-16
max. Earth dist.	4163 Dec 12 12:28	20°♂44'42	19.65584 AU	minimum elong	4171 Jan 12 19:49	22°♂18'22	0°20'16
retrograde	4164 Mar 29 01:17	25°♂02'58		max. Earth dist.	4171 Jan 12 23:59	22°♂19'00	20.06148 AU
opposition	4164 Jun 11 15:50	23°♂02'17	0°02'47	retrograde	4171 Apr 30 01:36	26°♂29'19	
min. Earth dist.	4164 Jun 11 21:23	23°♂01'42	17.68243 AU	opposition	4171 Jul 14 23:54	24°♂29'25	0°-24'-12
direct	4164 Aug 27 18:23	20°♂58'23		min. Earth dist.	4171 Jul 14 19:31	24°♂29'52	18.09261 AU
				direct	4171 Sep 30 06:11	22°♂27'39	
conjunction	4164 Dec 16 16:09	25°♂21'36	0°00'39				
minimum elong	4164 Dec 16 16:09	25°♂21'36	0°00'39	conjunction	4172 Jan 17 09:10	26°♂40'58	0°-23'-21
behind sun begin	4164 Dec 16 09:34	25°♂20'36		minimum elong	4172 Jan 17 09:09	26°♂40'58	0°23'21
behind sun end	4164 Dec 16 22:45	25°♂22'35		max. Earth dist.	4172 Jan 17 14:06	26°♂41'42	20.12439 AU
max. Earth dist.	4164 Dec 16 10:33	25°♂20'45	19.70975 AU		4172 Mar 20 05:34	0°≈	
desc. node	4165 Feb 18 06:30	28°♂47'11		retrograde	4172 May 03 17:25	0°≈51'04	
retrograde	4165 Apr 02 19:09	29°♂37'50			4172 Jun 19 02:14	30°♂♂	
opposition	4165 Jun 16 15:16	27°♂37'20	0°-1'-17	opposition	4172 Jul 18 19:06	28°♂51'16	0°-27'-32
min. Earth dist.	4165 Jun 16 20:29	27°♂36'47	17.73731 AU	min. Earth dist.	4172 Jul 18 12:39	28°♂51'55	18.15629 AU
direct	4165 Sep 01 17:36	25°♂33'46		direct	4172 Oct 04 00:14	26°♂49'49	
					4173 Jan 03 18:57	0°≈	
conjunction	4165 Dec 21 11:01	29°♂55'42	0°-3'-5				
minimum elong	4165 Dec 21 11:01	29°♂55'42	0°03'05	conjunction	4173 Jan 20 21:49	1°≈01'42	0°-26'-17
behind sun begin	4165 Dec 21 04:26	29°♂54'42		minimum elong	4173 Jan 20 21:48	1°≈01'42	0°26'17
behind sun end	4165 Dec 21 17:35	29°♂56'41		max. Earth dist.	4173 Jan 21 05:37	1°≈02'53	20.18858 AU
max. Earth dist.	4165 Dec 21 05:53	29°♂54'56	19.76550 AU	retrograde	4173 May 08 07:38	5°≈10'58	
	4165 Dec 22 14:51	0°♂		opposition	4173 Jul 23 13:38	3°≈11'19	0°-30'-41
retrograde	4166 Apr 07 15:17	4°♂11'05		min. Earth dist.	4173 Jul 23 05:34	3°≈12'08	18.22085 AU
opposition	4166 Jun 21 13:58	2°♂10'44	0°-5'-20	direct	4173 Oct 08 18:18	1°≈10'15	
min. Earth dist.	4166 Jun 21 16:56	2°♂10'25	17.79374 AU				
direct	4166 Sep 06 19:06	0°♂07'29		conjunction	4174 Jan 25 09:34	5°≈20'43	0°-29'-2
				minimum elong	4174 Jan 25 09:34	5°≈20'43	0°29'03

max. Earth dist.	4174 Jan 25 18:02	5° <del>21</del> '59	20.25345 AU	conjunction	4182 Feb 27 10:14	8° <del>58</del> '56	0°-43'-58
retrograde	4174 May 12 22:22	9° <del>29</del> '13		minimum elong	4182 Feb 27 10:14	8° <del>58</del> '56	0°44'00
opposition	4174 Jul 28 07:30	7° <del>29</del> '41	0°-33'-39	max. Earth dist.	4182 Feb 28 03:39	9° <del>01</del> '29	20.72165 AU
min. Earth dist.	4174 Jul 27 21:51	7° <del>30</del> '40	18.28594 AU	retrograde	4182 Jun 15 22:42	13° <del>02</del> '24	
direct	4174 Oct 13 10:46	5° <del>29</del> '01		opposition	4182 Sep 01 08:44	11° <del>03</del> '34	0°-49'-10
				min. Earth dist.	4182 Aug 31 15:29	11° <del>05</del> '17	18.74481 AU
conjunction	4175 Jan 29 20:49	9° <del>38</del> '06	0°-31'-37	direct	4182 Nov 17 00:33	9° <del>05</del> '29	
minimum elong	4175 Jan 29 20:48	9° <del>38</del> '06	0°31'39				
max. Earth dist.	4175 Jan 30 07:51	9° <del>39</del> '45	20.31850 AU	conjunction	4183 Mar 03 16:57	13° <del>04</del> '49	0°-44'-50
retrograde	4175 May 17 11:58	13° <del>45</del> '51		minimum elong	4183 Mar 03 16:57	13° <del>04</del> '49	0°44'51
opposition	4175 Aug 02 00:52	11° <del>46</del> '29	0°-36'-24	max. Earth dist.	4183 Mar 04 11:53	13° <del>07</del> '36	20.76671 AU
min. Earth dist.	4175 Aug 01 13:33	11° <del>47</del> '38	18.35076 AU	retrograde	4183 Jun 20 09:12	17° <del>07</del> '47	
direct	4175 Oct 18 03:13	9° <del>46</del> '14		opposition	4183 Sep 05 20:57	15° <del>08</del> '55	0°-49'-59
				min. Earth dist.	4183 Sep 05 02:05	15° <del>10</del> '49	18.78834 AU
conjunction	4176 Feb 03 07:07	13° <del>53</del> '56	0°-34'-1	direct	4183 Nov 21 12:43	13° <del>11</del> '03	
minimum elong	4176 Feb 03 07:07	13° <del>53</del> '56	0°34'01				
max. Earth dist.	4176 Feb 03 18:42	13° <del>55</del> '40	20.38296 AU	conjunction	4184 Mar 06 23:02	17° <del>09</del> '22	0°-45'-28
	4176 Feb 21 20:22	15° <del></del>		minimum elong	4184 Mar 06 23:02	17° <del>09</del> '22	0°45'29
retrograde	4176 May 21 01:37	18° <del>01</del> '00		max. Earth dist.	4184 Mar 07 18:13	17° <del>12</del> '10	20.80877 AU
opposition	4176 Aug 05 17:38	16° <del>01</del> '46	0°-38'-57	retrograde	4184 Jun 23 17:23	21° <del>11</del> '55	
min. Earth dist.	4176 Aug 05 05:16	16° <del>03</del> '02	18.41479 AU	opposition	4184 Sep 09 08:42	19° <del>13</del> '00	0°-50'-32
	4176 Sep 01 09:00	15° <del>R</del>		min. Earth dist.	4184 Sep 08 13:57	19° <del>14</del> '53	18.82915 AU
direct	4176 Oct 21 18:03	14° <del>01</del> '54		direct	4184 Nov 24 21:18	17° <del>15</del> '19	
	4176 Dec 09 01:36	15° <del></del>					
conjunction	4177 Feb 06 17:07	18° <del>08</del> '18	0°-36'-13	conjunction	4185 Mar 11 04:58	21° <del>12</del> '43	0°-45'-51
minimum elong	4177 Feb 06 17:06	18° <del>08</del> '18	0°36'14	minimum elong	4185 Mar 11 04:58	21° <del>12</del> '43	0°45'52
max. Earth dist.	4177 Feb 07 06:51	18° <del>10</del> '21	20.44620 AU	max. Earth dist.	4185 Mar 12 01:31	21° <del>15</del> '43	20.84822 AU
retrograde	4177 May 25 14:34	22° <del>14</del> '40		retrograde	4185 Jun 28 02:40	25° <del>14</del> '52	
opposition	4177 Aug 10 09:33	20° <del>15</del> '36	0°-41'-15	opposition	4185 Sep 13 19:33	23° <del>15</del> '57	0°-50'-50
min. Earth dist.	4177 Aug 09 19:42	20° <del>17</del> '00	18.47708 AU	min. Earth dist.	4185 Sep 12 23:10	23° <del>18</del> '00	18.86727 AU
direct	4177 Oct 26 09:11	18° <del>16</del> '07		direct	4185 Nov 29 07:42	21° <del>18</del> '27	
conjunction	4178 Feb 11 02:23	22° <del>21</del> '14	0°-38'-12	conjunction	4186 Mar 15 10:28	25° <del>15</del> '02	0°-46'-1
minimum elong	4178 Feb 11 02:23	22° <del>21</del> '14	0°38'13	minimum elong	4186 Mar 15 10:28	25° <del>15</del> '02	0°46'02
max. Earth dist.	4178 Feb 11 16:21	22° <del>23</del> '19	20.50738 AU	max. Earth dist.	4186 Mar 16 07:09	25° <del>18</del> '02	20.88498 AU
retrograde	4178 May 30 02:51	26° <del>26</del> '59		retrograde	4186 Jul 02 10:42	29° <del>16</del> '53	
min. Earth dist.	4178 Aug 14 10:45	24° <del>29</del> '28	18.53718 AU	min. Earth dist.	4186 Sep 17 10:07	27° <del>19</del> '58	18.90279 AU
opposition	4178 Aug 15 01:07	24° <del>28</del> '01	0°-43'-20	opposition	4186 Sep 18 06:15	27° <del>17</del> '57	0°-50'-53
direct	4178 Oct 30 22:36	22° <del>28</del> '53		direct	4186 Dec 03 14:56	25° <del>20</del> '38	
conjunction	4179 Feb 15 11:08	26° <del>32</del> '46	0°-39'-59	conjunction	4187 Mar 19 15:44	29° <del>16</del> '29	0°-45'-58
minimum elong	4179 Feb 15 11:08	26° <del>32</del> '46	0°40'00	minimum elong	4187 Mar 19 15:44	29° <del>16</del> '29	0°45'58
max. Earth dist.	4179 Feb 16 02:56	26° <del>35</del> '07	20.56602 AU	max. Earth dist.	4187 Mar 20 13:39	29° <del>19</del> '39	20.91913 AU
	4179 Apr 25 15:52	0° <del>1</del>			4187 Apr 01 05:11	0° <del>1</del>	
retrograde	4179 Jun 03 15:31	0° <del>37</del> '54		retrograde	4187 Jul 06 19:39	3° <del>18</del> '04	
	4179 Jul 13 19:33	30° <del>R</del>		opposition	4187 Sep 22 16:20	1° <del>19</del> '09	0°-50'-41
opposition	4179 Aug 19 16:01	28° <del>39</del> '01	0°-45'-10	min. Earth dist.	4187 Sep 21 18:40	1° <del>21</del> '19	18.93541 AU
min. Earth dist.	4179 Aug 19 00:10	28° <del>40</del> '37	18.59426 AU		4187 Oct 28 20:20	30° <del>R</del>	
direct	4179 Nov 04 12:51	26° <del>40</del> '13		direct	4187 Dec 07 23:54	29° <del>22</del> '02	
	4180 Feb 07 16:17	0° <del>1</del>			4188 Jan 15 18:45	0° <del>1</del>	
conjunction	4180 Feb 19 19:21	0° <del>42</del> '54	0°-41'-32	conjunction	4188 Mar 22 20:52	3° <del>17</del> '13	0°-45'-41
minimum elong	4180 Feb 19 19:21	0° <del>42</del> '54	0°41'33	minimum elong	4188 Mar 22 20:52	3° <del>17</del> '13	0°45'41
max. Earth dist.	4180 Feb 20 11:14	0° <del>45</del> '15	20.62142 AU	max. Earth dist.	4188 Mar 23 18:44	3° <del>20</del> '22	20.95015 AU
retrograde	4180 Jun 07 02:01	4° <del>47</del> '28		retrograde	4188 Jul 10 03:31	7° <del>18</del> '37	
opposition	4180 Aug 23 06:15	2° <del>48</del> '38	0°-46'-45	min. Earth dist.	4188 Sep 25 05:02	5° <del>21</del> '48	18.96486 AU
min. Earth dist.	4180 Aug 22 14:19	2° <del>50</del> '14	18.64807 AU	opposition	4188 Sep 26 02:00	5° <del>19</del> '43	0°-50'-14
direct	4180 Nov 08 00:53	0° <del>50</del> '06		direct	4188 Dec 11 05:49	3° <del>22</del> '47	
conjunction	4181 Feb 23 03:09	4° <del>51</del> '38	0°-42'-52	conjunction	4189 Mar 27 02:02	7° <del>17</del> '24	0°-45'-10
minimum elong	4181 Feb 23 03:09	4° <del>51</del> '38	0°42'53	minimum elong	4189 Mar 27 02:02	7° <del>17</del> '24	0°45'12
max. Earth dist.	4181 Feb 23 20:29	4° <del>54</del> '11	20.67339 AU	max. Earth dist.	4189 Mar 28 00:43	7° <del>20</del> '40	20.97787 AU
retrograde	4181 Jun 11 13:54	8° <del>55</del> '37		retrograde	4189 Jul 14 12:29	11° <del>18</del> '39	
opposition	4181 Aug 27 19:44	6° <del>56</del> '48	0°-48'-5	opposition	4189 Sep 30 11:15	9° <del>19</del> '47	0°-49'-33
min. Earth dist.	4181 Aug 27 02:25	6° <del>58</del> '33	18.69815 AU	min. Earth dist.	4189 Sep 29 13:08	9° <del>22</del> '00	18.99063 AU
direct	4181 Nov 12 14:11	4° <del>58</del> '32		direct	4189 Dec 15 13:56	7° <del>23</del> '02	



conjunction	4190 Mar 31 06:57	11°♈17'10	0°-44'-27	conjunction	4198 May 02 04:00	13°♏09'36	0°-31'-29
minimum elong	4190 Mar 31 06:57	11°♈17'10	0°44'28	minimum elong	4198 May 02 04:00	13°♏09'36	0°31'30
max. Earth dist.	4190 Apr 01 05:21	11°♈20'23	21.00159 AU	max. Earth dist.	4198 May 02 22:50	13°♏12'17	21.01357 AU
retrograde	4190 Jul 18 20:11	15°♈18'21			4198 Jun 04 12:13	15°♏	
opposition	4190 Oct 04 20:25	13°♈19'30	0°-48'-37	retrograde	4198 Aug 20 14:56	17°♏11'51	
min. Earth dist.	4190 Oct 03 23:20	13°♈21'36	19.01232 AU	opposition	4198 Nov 06 11:55	15°♏12'18	0°-33'-26
direct	4190 Dec 19 19:05	11°♈22'55		min. Earth dist.	4198 Nov 05 19:07	15°♏13'59	19.00496 AU
					4198 Nov 11 13:41	15°♏♏	
conjunction	4191 Apr 04 12:10	15°♈16'38	0°-43'-31	direct	4199 Jan 20 18:03	13°♏15'38	
minimum elong	4191 Apr 04 12:10	15°♈16'38	0°43'33		4199 Mar 27 19:02	15°♏	
max. Earth dist.	4191 Apr 05 11:03	15°♈19'55	21.02111 AU				
retrograde	4191 Jul 23 05:32	19°♈17'48		conjunction	4199 May 06 10:42	17°♏09'00	0°-29'-4
min. Earth dist.	4191 Oct 08 07:14	17°♈21'07	19.02943 AU	minimum elong	4199 May 06 10:42	17°♏09'00	0°29'05
opposition	4191 Oct 09 05:05	17°♈18'56	0°-47'-28	max. Earth dist.	4199 May 07 05:17	17°♏11'39	20.99504 AU
direct	4191 Dec 24 02:43	15°♈22'29		retrograde	4199 Aug 25 01:29	21°♏11'37	
				opposition	4199 Nov 10 19:00	19°♏11'57	0°-30'-41
conjunction	4192 Apr 07 17:25	19°♈15'53	0°-42'-23	min. Earth dist.	4199 Nov 10 01:50	19°♏13'41	18.98469 AU
minimum elong	4192 Apr 07 17:25	19°♈15'53	0°42'24	direct	4200 Jan 25 00:13	17°♏15'11	
max. Earth dist.	4192 Apr 08 15:32	19°♈19'04	21.03564 AU				
retrograde	4192 Jul 26 13:05	23°♈17'06		conjunction	4200 May 10 17:43	21°♏08'55	0°-26'-31
opposition	4192 Oct 12 13:41	21°♈18'12	0°-46'-5	minimum elong	4200 May 10 17:43	21°♏08'55	0°26'32
min. Earth dist.	4192 Oct 11 17:20	21°♈20'15	19.04137 AU	max. Earth dist.	4200 May 11 11:16	21°♏11'25	20.97307 AU
direct	4192 Dec 27 07:38	19°♈21'50		retrograde	4200 Aug 29 09:15	25°♏11'57	
				min. Earth dist.	4200 Nov 14 10:53	23°♏13'45	18.96109 AU
conjunction	4193 Apr 11 22:54	23°♈15'00	0°-41'-2	opposition	4200 Nov 15 02:20	23°♏12'11	0°-27'-47
minimum elong	4193 Apr 11 22:54	23°♈15'00	0°41'03	direct	4201 Jan 29 04:19	21°♏15'19	
max. Earth dist.	4193 Apr 12 20:57	23°♈18'10	21.04486 AU				
retrograde	4193 Jul 30 22:25	27°♈16'15		conjunction	4201 May 15 01:10	25°♏09'30	0°-23'-49
opposition	4193 Oct 16 21:48	25°♈17'19	0°-44'-29	minimum elong	4201 May 15 01:10	25°♏09'30	0°23'51
min. Earth dist.	4193 Oct 16 00:59	25°♈19'24	19.04772 AU	max. Earth dist.	4201 May 15 18:15	25°♏11'57	20.94795 AU
direct	4193 Dec 31 14:52	23°♈21'00		retrograde	4201 Sep 02 20:52	29°♏13'02	
				opposition	4201 Nov 19 09:36	27°♏13'11	0°-24'-45
conjunction	4194 Apr 16 04:25	27°♈13'59	0°-39'-29	min. Earth dist.	4201 Nov 18 17:57	27°♏14'46	18.93428 AU
minimum elong	4194 Apr 16 04:25	27°♈13'59	0°39'31	direct	4202 Feb 02 11:02	25°♏16'12	
max. Earth dist.	4194 Apr 17 01:26	27°♈16'59	21.04841 AU				
	4194 Jun 08 08:03	0°♏		conjunction	4202 May 19 09:10	29°♏10'56	0°-21'00
retrograde	4194 Aug 04 05:42	1°♏15'21		minimum elong	4202 May 19 09:10	29°♏10'56	0°21'02
	4194 Oct 02 15:30	30°♏♈		max. Earth dist.	4202 May 20 01:07	29°♏13'13	20.91952 AU
min. Earth dist.	4194 Oct 20 10:48	29°♈18'14	19.04855 AU		4202 Jun 02 17:17	0°♐	
opposition	4194 Oct 21 05:59	29°♈16'19	0°-42'-40	retrograde	4202 Sep 07 05:26	3°♐15'00	
direct	4195 Jan 04 19:55	27°♈19'59		opposition	4202 Nov 23 17:10	1°♐15'05	0°-21'-34
	4195 Mar 29 21:34	0°♏		min. Earth dist.	4202 Nov 23 03:26	1°♐16'29	18.90421 AU
					4202 Dec 27 00:11	30°♏♏	
conjunction	4195 Apr 20 10:03	1°♏12'51	0°-37'-45	direct	4203 Feb 06 15:06	29°♏18'00	
minimum elong	4195 Apr 20 10:03	1°♏12'52	0°37'46		4203 Mar 19 08:47	0°♐	
max. Earth dist.	4195 Apr 21 06:55	1°♏15'51	21.04668 AU				
retrograde	4195 Aug 08 14:57	5°♏14'22		conjunction	4203 May 23 17:49	3°♐13'22	0°-18'-5
opposition	4195 Oct 25 13:42	3°♏15'13	0°-40'-39	minimum elong	4203 May 23 17:49	3°♐13'22	0°18'07
min. Earth dist.	4195 Oct 24 18:07	3°♏17'11	19.04415 AU	max. Earth dist.	4203 May 24 08:57	3°♐15'32	20.88788 AU
direct	4196 Jan 09 02:34	1°♏18'49		retrograde	4203 Sep 11 17:39	7°♐18'00	
				min. Earth dist.	4203 Nov 27 11:15	5°♐19'24	18.87068 AU
conjunction	4196 Apr 23 15:51	5°♏11'41	0°-35'-50	opposition	4203 Nov 28 00:47	5°♐18'01	0°-18'-17
minimum elong	4196 Apr 23 15:51	5°♏11'41	0°35'51	direct	4204 Feb 10 22:47	3°♐20'48	
max. Earth dist.	4196 Apr 24 11:43	5°♏14'31	21.03984 AU				
retrograde	4196 Aug 11 22:04	9°♏13'22		conjunction	4204 May 27 03:11	7°♐16'54	0°-15'-4
opposition	4196 Oct 28 21:12	7°♏14'05	0°-38'-26	minimum elong	4204 May 27 03:11	7°♐16'54	0°15'04
min. Earth dist.	4196 Oct 28 03:19	7°♏15'53	19.03506 AU	behind sun begin	4204 May 27 00:56	7°♐16'35	
direct	4197 Jan 12 07:24	5°♏17'37		behind sun end	4204 May 27 05:26	7°♐17'13	
				max. Earth dist.	4204 May 27 16:50	7°♐18'51	20.85241 AU
conjunction	4197 Apr 27 21:55	9°♏10'33	0°-33'-44	retrograde	4204 Sep 15 03:21	11°♐22'10	
minimum elong	4197 Apr 27 21:55	9°♏10'33	0°33'45	opposition	4204 Dec 01 08:39	9°♐22'06	0°-14'-53
max. Earth dist.	4197 Apr 28 17:37	9°♏13'22	21.02870 AU	min. Earth dist.	4204 Nov 30 21:25	9°♐23'15	18.83325 AU
retrograde	4197 Aug 16 07:32	13°♏12'29		direct	4205 Feb 14 03:43	7°♐24'43	
min. Earth dist.	4197 Nov 01 10:09	11°♏14'55	19.02186 AU				
opposition	4197 Nov 02 04:30	11°♏13'04	0°-36'-1	conjunction	4205 May 31 13:16	11°♐21'37	0°-11'-57
direct	4198 Jan 16 13:32	9°♏16'30		minimum elong	4205 May 31 13:16	11°♐21'37	0°11'58
				behind sun begin	4205 May 31 08:43	11°♐20'59	

behind sun end	4205 May 31 17:50	11°II22'16		opposition	4211 Dec 31 00:24	8°☾24'18	0°10'36
max. Earth dist.	4205 Jun 01 01:32	11°II23'23	20.81304 AU	min. Earth dist.	4211 Dec 30 22:45	8°☾24'29	18.46344 AU
retrograde	4205 Sep 19 15:51	15°II27'32		direct	4212 Mar 14 17:08	6°☾24'41	
opposition	4205 Dec 05 16:49	13°II27'22	0°-11'-23				
min. Earth dist.	4205 Dec 05 06:07	13°II28'28	18.79170 AU	conjunction	4212 Jun 30 07:33	10°☾28'52	0°11'14
direct	4206 Feb 18 12:07	11°II29'48		minimum elong	4212 Jun 30 07:32	10°☾28'52	0°11'14
				behind sun begin	4212 Jun 30 02:38	10°☾28'10	
conjunction	4206 Jun 04 23:57	15°II27'33	0°-8'-45	behind sun end	4212 Jun 30 12:27	10°☾29'34	
minimum elong	4206 Jun 04 23:57	15°II27'33	0°08'46	max. Earth dist.	4212 Jun 30 08:15	10°☾28'58	20.43246 AU
behind sun begin	4206 Jun 04 18:11	15°II26'45		retrograde	4212 Oct 19 07:53	14°☾39'54	
behind sun end	4206 Jun 05 05:43	15°II28'22		opposition	4213 Jan 03 10:56	12°☾38'27	0°14'15
max. Earth dist.	4206 Jun 05 10:30	15°II29'04	20.76924 AU	min. Earth dist.	4213 Jan 03 11:10	12°☾38'26	18.40102 AU
retrograde	4206 Sep 24 02:34	19°II34'10		direct	4213 Mar 19 02:53	10°☾38'28	
opposition	4206 Dec 10 01:27	17°II33'51	0°-7'-48				
min. Earth dist.	4206 Dec 09 17:10	17°II34'42	18.74566 AU	conjunction	4213 Jul 04 23:22	14°☾43'57	0°14'30
direct	4207 Feb 22 18:47	15°II36'01		minimum elong	4213 Jul 04 23:22	14°☾43'57	0°14'30
				behind sun begin	4213 Jul 04 20:35	14°☾43'33	
conjunction	4207 Jun 09 11:32	19°II34'42	0°-5'-30	behind sun end	4213 Jul 05 02:09	14°☾44'21	
minimum elong	4207 Jun 09 11:32	19°II34'42	0°05'32	max. Earth dist.	4213 Jul 04 22:02	14°☾43'45	20.36982 AU
behind sun begin	4207 Jun 09 05:06	19°II33'47		retrograde	4213 Oct 23 23:38	18°☾55'49	
behind sun end	4207 Jun 09 17:59	19°II35'36		opposition	4214 Jan 07 21:58	16°☾54'13	0°17'51
max. Earth dist.	4207 Jun 09 20:16	19°II35'56	20.72116 AU	min. Earth dist.	4214 Jan 07 22:56	16°☾54'07	18.33819 AU
retrograde	4207 Sep 28 15:19	23°II41'58		direct	4214 Mar 23 14:41	14°☾53'52	
opposition	4207 Dec 14 10:06	21°II41'30	0°-4'-10				
min. Earth dist.	4207 Dec 14 02:35	21°II42'17	18.69542 AU	conjunction	4214 Jul 09 16:05	19°☾00'42	0°17'42
direct	4208 Feb 27 03:40	19°II43'21		minimum elong	4214 Jul 09 16:05	19°☾00'42	0°17'42
				max. Earth dist.	4214 Jul 09 13:56	19°☾00'24	20.30679 AU
conjunction	4208 Jun 12 23:46	23°II43'01	0°-2'-12	retrograde	4214 Oct 28 14:20	23°☾13'26	
minimum elong	4208 Jun 12 23:47	23°II43'01	0°02'13	opposition	4215 Jan 12 09:40	21°☾11'43	0°21'22
behind sun begin	4208 Jun 12 17:04	23°II42'04		min. Earth dist.	4215 Jan 12 12:19	21°☾11'26	18.27514 AU
behind sun end	4208 Jun 13 06:29	23°II43'57		direct	4215 Mar 28 01:41	19°☾11'02	
max. Earth dist.	4208 Jun 13 06:45	23°II44'00	20.66889 AU				
retrograde	4208 Oct 02 02:45	27°II50'59		conjunction	4215 Jul 14 09:43	23°☾19'17	0°20'49
opposition	4208 Dec 17 19:15	25°II50'19	0°00'-29	minimum elong	4215 Jul 14 09:43	23°☾19'17	0°20'49
min. Earth dist.	4208 Dec 17 14:05	25°II50'51	18.64130 AU	max. Earth dist.	4215 Jul 14 05:16	23°☾18'38	20.24390 AU
asc. node	4209 Feb 05 22:32	24°II07'20		retrograde	4215 Nov 02 07:22	27°☾32'53	
direct	4209 Mar 02 11:52	23°II51'51		opposition	4216 Jan 16 21:45	25°☾31'05	0°24'48
				min. Earth dist.	4216 Jan 17 01:25	25°☾30'41	18.21236 AU
conjunction	4209 Jun 17 12:31	27°II52'31	0°01'14	direct	4216 Mar 31 14:40	23°☾30'04	
minimum elong	4209 Jun 17 12:31	27°II52'31	0°01'14				
behind sun begin	4209 Jun 17 05:49	27°II51'34		conjunction	4216 Jul 18 04:22	27°☾39'47	0°23'51
behind sun end	4209 Jun 17 19:13	27°II53'28		minimum elong	4216 Jul 18 04:22	27°☾39'47	0°23'51
max. Earth dist.	4209 Jun 17 17:41	27°II53'14	20.61326 AU	max. Earth dist.	4216 Jul 17 23:13	27°☾39'02	20.18115 AU
	4209 Jul 25 20:40	0°☾			4216 Aug 28 18:40	0°☾	
retrograde	4209 Oct 06 15:52	2°☾01'13		retrograde	4216 Nov 06 00:00	1°☾54'17	
opposition	4209 Dec 22 04:36	0°☾00'21	0°03'12		4217 Jan 17 11:26	30°☾☾	
min. Earth dist.	4209 Dec 22 00:07	0°☾00'49	18.58417 AU	opposition	4217 Jan 20 10:41	29°☾52'25	0°28'06
	4209 Dec 22 07:54	30°☾II		min. Earth dist.	4217 Jan 20 15:58	29°☾51'51	18.14973 AU
direct	4210 Mar 06 21:28	28°II01'30		direct	4217 Apr 05 03:16	27°☾51'06	
	4210 May 16 04:08	0°☾			4217 Jun 17 07:32	0°☾	
conjunction	4210 Jun 22 02:08	2°☾03'16	0°04'37	conjunction	4217 Jul 22 23:37	2°☾02'18	0°26'46
minimum elong	4210 Jun 22 02:06	2°☾03'16	0°04'36	minimum elong	4217 Jul 22 23:37	2°☾02'18	0°26'45
behind sun begin	4210 Jun 21 19:32	2°☾02'20		max. Earth dist.	4217 Jul 22 15:57	2°☾01'10	20.11869 AU
behind sun end	4210 Jun 22 08:41	2°☾04'12		retrograde	4217 Nov 10 18:15	6°☾17'43	
max. Earth dist.	4210 Jun 22 05:53	2°☾03'47	20.55480 AU	opposition	4218 Jan 25 00:14	4°☾15'47	0°31'17
retrograde	4210 Oct 11 04:15	6°☾12'43		min. Earth dist.	4218 Jan 25 06:49	4°☾15'05	18.08738 AU
opposition	4210 Dec 26 14:20	4°☾11'38	0°06'55	direct	4218 Apr 09 17:24	2°☾14'09	
min. Earth dist.	4210 Dec 26 11:57	4°☾11'53	18.52463 AU				
direct	4211 Mar 11 06:29	2°☾12'25		conjunction	4218 Jul 27 20:10	6°☾26'53	0°29'33
				minimum elong	4218 Jul 27 20:10	6°☾26'53	0°29'33
conjunction	4211 Jun 26 16:26	6°☾15'21	0°07'56	max. Earth dist.	4218 Jul 27 11:44	6°☾25'38	20.05621 AU
minimum elong	4211 Jun 26 16:26	6°☾15'21	0°07'56	retrograde	4218 Nov 15 13:04	10°☾43'09	
behind sun begin	4211 Jun 26 10:26	6°☾14'30		opposition	4219 Jan 29 14:25	8°☾41'10	0°34'18
behind sun end	4211 Jun 26 22:26	6°☾16'12		min. Earth dist.	4219 Jan 29 22:39	8°☾40'17	18.02486 AU
max. Earth dist.	4211 Jun 26 18:16	6°☾15'36	20.49443 AU	direct	4219 Apr 14 07:53	6°☾39'12	
retrograde	4211 Oct 15 18:34	10°☾25'35					

conjunction	4219 Aug 01 17:29	10°♏53'26	0°32'11	min. Earth dist.	4227 Mar 07 00:44	15°♐02'51	17.56412 AU
minimum elong	4219 Aug 01 17:29	10°♏53'26	0°32'10	direct	4227 May 20 14:12	12°♐59'46	
max. Earth dist.	4219 Aug 01 06:02	10°♏51'43	19.99365 AU				
	4219 Oct 31 08:58	15°♏		conjunction	4227 Sep 08 20:30	17°♐24'43	0°45'18
retrograde	4219 Nov 20 08:19	15°♏10'34		minimum elong	4227 Sep 08 20:30	17°♐24'43	0°45'17
	4219 Dec 10 10:17	15°♐♏		max. Earth dist.	4227 Sep 07 23:07	17°♐21'26	19.54165 AU
opposition	4220 Feb 03 05:24	13°♏08'29	0°37'08	retrograde	4227 Dec 27 06:12	21°♐46'51	
min. Earth dist.	4220 Feb 03 15:15	13°♏07'25	17.96234 AU	opposition	4228 Mar 10 03:59	19°♐43'55	0°50'44
direct	4220 Apr 17 23:25	11°♏06'09		min. Earth dist.	4228 Mar 10 22:13	19°♐41'55	17.52109 AU
	4220 Jul 30 14:05	15°♏		direct	4228 May 24 11:57	17°♐38'43	
conjunction	4220 Aug 05 15:41	15°♏21'52	0°34'38	conjunction	4228 Sep 12 23:00	22°♐04'45	0°45'44
minimum elong	4220 Aug 05 15:41	15°♏21'52	0°34'37	minimum elong	4228 Sep 12 23:00	22°♐04'45	0°45'44
max. Earth dist.	4220 Aug 05 03:31	15°♏20'03	19.93101 AU	max. Earth dist.	4228 Sep 12 01:39	22°♐01'27	19.50115 AU
retrograde	4220 Nov 24 04:39	19°♏39'47		retrograde	4228 Dec 31 05:55	26°♐27'18	
opposition	4221 Feb 06 21:01	17°♏37'36	0°39'46	opposition	4229 Mar 15 00:37	24°♐24'22	0°51'03
min. Earth dist.	4221 Feb 07 08:09	17°♏36'24	17.89982 AU	min. Earth dist.	4229 Mar 15 18:11	24°♐22'27	17.48314 AU
direct	4221 Apr 22 15:54	15°♏34'54		direct	4229 May 29 11:45	22°♐18'58	
				max. Earth dist.	4229 Sep 17 04:09	26°♐42'38	19.46576 AU
conjunction	4221 Aug 10 14:29	19°♏52'04	0°36'53	conjunction	4229 Sep 18 02:00	26°♐46'01	0°45'51
minimum elong	4221 Aug 10 14:29	19°♏52'04	0°36'53	minimum elong	4229 Sep 18 02:00	26°♐46'01	0°45'51
max. Earth dist.	4221 Aug 09 23:25	19°♏49'48	19.86882 AU		4229 Nov 15 06:55	0°♏	
retrograde	4221 Nov 29 00:12	24°♏10'45		retrograde	4230 Jan 05 03:59	1°♏08'56	
opposition	4222 Feb 11 13:16	22°♏08'26	0°42'10		4230 Feb 26 15:12	30°♐♐	
min. Earth dist.	4222 Feb 12 02:06	22°♏07'03	17.83815 AU	opposition	4230 Mar 19 21:51	29°♐06'04	0°51'02
direct	4222 Apr 27 09:10	20°♏05'19		min. Earth dist.	4230 Mar 20 16:48	29°♐03'59	17.45040 AU
conjunction	4222 Aug 15 14:10	24°♏23'55	0°38'56	direct	4230 Jun 03 10:08	27°♐00'30	
minimum elong	4222 Aug 15 14:10	24°♏23'55	0°38'55		4230 Aug 30 01:11	0°♏	
max. Earth dist.	4222 Aug 14 22:40	24°♏21'35	19.80766 AU	max. Earth dist.	4230 Sep 22 07:04	1°♏25'02	19.43557 AU
retrograde	4222 Dec 03 21:13	28°♏43'17		conjunction	4230 Sep 23 05:21	1°♏28'30	0°45'40
opposition	4223 Feb 16 06:09	26°♏40'51	0°44'20	minimum elong	4230 Sep 23 05:21	1°♏28'30	0°45'41
min. Earth dist.	4223 Feb 16 19:49	26°♏39'22	17.77770 AU	retrograde	4231 Jan 10 05:00	5°♏51'43	
direct	4223 May 02 03:26	24°♏37'21		opposition	4231 Mar 24 19:40	3°♏48'55	0°50'41
conjunction	4223 Aug 20 14:22	28°♏57'20	0°40'44	min. Earth dist.	4231 Mar 25 13:59	3°♏46'55	17.42257 AU
minimum elong	4223 Aug 20 14:22	28°♏57'20	0°40'44	direct	4231 Jun 08 11:23	1°♏43'15	
max. Earth dist.	4223 Aug 19 20:18	28°♏54'35	19.74813 AU	max. Earth dist.	4231 Sep 27 10:46	6°♏08'37	19.40999 AU
	4223 Sep 06 22:09	0°♐		conjunction	4231 Sep 28 09:00	6°♏12'05	0°45'11
retrograde	4223 Dec 08 17:02	3°♐17'21		minimum elong	4231 Sep 28 09:00	6°♏12'05	0°45'12
opposition	4224 Feb 20 23:38	1°♐14'46	0°46'13	retrograde	4232 Jan 15 03:43	10°♏35'31	
min. Earth dist.	4224 Feb 21 14:59	1°♐13'06	17.71941 AU	opposition	4232 Mar 28 18:15	8°♏32'50	0°49'59
	4224 Mar 22 19:17	30°♐♏		min. Earth dist.	4232 Mar 29 13:51	8°♏30'41	17.39934 AU
direct	4224 May 05 22:44	29°♏10'52		direct	4232 Jun 12 10:52	6°♏27'04	
	4224 Jun 18 10:17	0°♐					
conjunction	4224 Aug 24 15:15	3°♐32'11	0°42'17	conjunction	4232 Oct 02 12:43	10°♏56'36	0°44'24
minimum elong	4224 Aug 24 15:15	3°♐32'11	0°42'17	minimum elong	4232 Oct 02 12:43	10°♏56'36	0°44'24
max. Earth dist.	4224 Aug 23 21:03	3°♐29'24	19.69110 AU	max. Earth dist.	4232 Oct 01 13:40	10°♏53'00	19.38902 AU
retrograde	4224 Dec 12 14:26	7°♐52'47		retrograde	4233 Jan 19 05:15	15°♏20'11	
opposition	4225 Feb 24 17:45	5°♐50'05	0°47'49	opposition	4233 Apr 02 17:12	13°♏17'35	0°48'56
min. Earth dist.	4225 Feb 25 09:21	5°♐48'23	17.66388 AU	min. Earth dist.	4233 Apr 03 12:06	13°♏15'31	17.38055 AU
direct	4225 May 10 19:05	3°♐45'49		direct	4233 Jun 17 13:04	11°♏11'44	
conjunction	4225 Aug 29 16:22	8°♐08'24	0°43'34	conjunction	4233 Oct 07 16:35	15°♏41'51	0°43'18
minimum elong	4225 Aug 29 16:22	8°♐08'24	0°43'34	minimum elong	4233 Oct 07 16:35	15°♏41'51	0°43'19
max. Earth dist.	4225 Aug 28 20:16	8°♐05'19	19.63721 AU	max. Earth dist.	4233 Oct 06 18:10	15°♏38'21	19.37229 AU
retrograde	4225 Dec 17 10:41	12°♐29'35		retrograde	4234 Jan 24 04:32	20°♏05'29	
opposition	4226 Mar 01 12:36	10°♐26'45	0°49'06	opposition	4234 Apr 07 16:48	18°♏02'58	0°47'33
min. Earth dist.	4226 Mar 02 05:42	10°♐24'53	17.61195 AU	min. Earth dist.	4234 Apr 08 12:43	18°♏00'47	17.36593 AU
direct	4226 May 15 15:50	8°♐22'07		direct	4234 Jun 22 13:44	15°♏57'03	
conjunction	4226 Sep 03 18:15	12°♐45'55	0°44'35	conjunction	4234 Oct 12 20:21	20°♏27'36	0°41'55
minimum elong	4226 Sep 03 18:15	12°♐45'55	0°44'35	minimum elong	4234 Oct 12 20:21	20°♏27'36	0°41'54
max. Earth dist.	4226 Sep 02 22:08	12°♐42'50	19.58724 AU	max. Earth dist.	4234 Oct 11 20:56	20°♏23'56	19.35984 AU
retrograde	4226 Dec 22 09:04	17°♐07'36		retrograde	4235 Jan 29 05:45	24°♏51'13	
opposition	4227 Mar 06 07:50	15°♐04'42	0°50'05	opposition	4235 Apr 12 16:33	22°♏48'45	0°45'51

min. Earth dist.	4235 Apr 13 11:48	22°♄46'39	17.35562 AU	retrograde	4243 Mar 07 20:02	2°♄46'54	
direct	4235 Jun 27 16:39	20°♄42'46		opposition	4243 May 20 21:36	0°♄45'13	0°22'16
max. Earth dist.	4235 Oct 17 01:56	25°♄10'09	19.35170 AU	min. Earth dist.	4243 May 21 10:57	0°♄43'47	17.45711 AU
					4243 Jun 07 20:50	30°♄	
conjunction	4235 Oct 18 00:07	25°♄13'38	0°40'13	direct	4243 Aug 05 17:15	28°♄39'45	
minimum elong	4235 Oct 18 00:07	25°♄13'38	0°40'13		4243 Oct 01 04:47	0°♄	
retrograde	4236 Feb 03 04:55	29°♄37'07					
opposition	4236 Apr 16 16:53	27°♄34'44	0°43'49	conjunction	4243 Nov 25 12:40	3°♄08'04	0°18'16
min. Earth dist.	4236 Apr 17 12:33	27°♄32'35	17.34970 AU	minimum elong	4243 Nov 25 12:40	3°♄08'04	0°18'17
direct	4236 Jul 01 18:33	25°♄28'43		max. Earth dist.	4243 Nov 24 22:56	3°♄05'55	19.47542 AU
max. Earth dist.	4236 Oct 21 04:22	29°♄56'07	19.34818 AU	retrograde	4244 Mar 11 19:02	7°♄28'00	
				opposition	4244 May 24 22:11	5°♄25'31	0°18'26
conjunction	4236 Oct 22 03:15	29°♄59'42	0°38'15	min. Earth dist.	4244 May 25 09:24	5°♄25'19	17.49497 AU
minimum elong	4236 Oct 22 03:15	29°♄59'42	0°38'16	direct	4244 Aug 09 19:37	3°♄21'21	
	4236 Oct 22 05:08	0°♄					
retrograde	4237 Feb 07 05:05	4°♄23'00		conjunction	4244 Nov 29 11:23	7°♄48'48	0°14'47
opposition	4237 Apr 21 17:17	2°♄20'39	0°41'28	minimum elong	4244 Nov 29 11:23	7°♄48'48	0°14'48
min. Earth dist.	4237 Apr 22 12:10	2°♄18'36	17.34859 AU	behind sun begin	4244 Nov 29 08:42	7°♄48'24	
direct	4237 Jul 06 22:04	0°♄14'36		behind sun end	4244 Nov 29 14:04	7°♄49'13	
max. Earth dist.	4237 Oct 26 09:12	4°♄42'17	19.34952 AU	max. Earth dist.	4244 Nov 28 23:08	7°♄46'54	19.51562 AU
				retrograde	4245 Mar 16 16:29	12°♄08'04	
conjunction	4237 Oct 27 06:20	4°♄45'37	0°36'02	opposition	4245 May 29 22:43	10°♄06'48	0°14'30
minimum elong	4237 Oct 27 06:20	4°♄45'37	0°36'01	min. Earth dist.	4245 May 30 09:30	10°♄05'39	17.53734 AU
retrograde	4238 Feb 12 03:47	9°♄08'36		direct	4245 Aug 14 20:30	8°♄01'55	
opposition	4238 Apr 26 17:47	7°♄06'19	0°38'51				
min. Earth dist.	4238 Apr 27 12:29	7°♄04'17	17.35236 AU	conjunction	4245 Dec 04 09:31	12°♄28'27	0°11'14
direct	4238 Jul 12 01:40	5°♄00'16		minimum elong	4245 Dec 04 09:31	12°♄28'27	0°11'14
max. Earth dist.	4238 Oct 31 11:25	9°♄27'45	19.35600 AU	behind sun begin	4245 Dec 04 04:36	12°♄27'42	
				behind sun end	4245 Dec 04 14:26	12°♄29'12	
conjunction	4238 Nov 01 08:50	9°♄31'07	0°33'33	max. Earth dist.	4245 Dec 03 22:38	12°♄26'45	19.55999 AU
minimum elong	4238 Nov 01 08:50	9°♄31'07	0°33'34	retrograde	4246 Mar 21 14:28	16°♄46'59	
retrograde	4239 Feb 17 02:30	13°♄53'45		opposition	4246 Jun 03 22:51	14°♄45'55	0°10'29
opposition	4239 May 01 18:31	11°♄51'31	0°35'57	min. Earth dist.	4246 Jun 04 07:24	14°♄45'00	17.58335 AU
min. Earth dist.	4239 May 02 12:23	11°♄49'35	17.36160 AU	direct	4246 Aug 19 22:46	12°♄41'21	
direct	4239 Jul 17 05:26	9°♄45'29					
				conjunction	4246 Dec 09 07:00	17°♄06'51	0°07'37
conjunction	4239 Nov 06 10:48	14°♄16'03	0°30'51	minimum elong	4246 Dec 09 06:59	17°♄06'51	0°07'38
minimum elong	4239 Nov 06 10:48	14°♄16'03	0°30'52	behind sun begin	4246 Dec 09 00:58	17°♄05'56	
max. Earth dist.	4239 Nov 05 15:34	14°♄13'02	19.36804 AU	behind sun end	4246 Dec 09 13:00	17°♄07'46	
	4239 Nov 18 03:06	15°♄		max. Earth dist.	4246 Dec 08 21:53	17°♄05'27	19.60762 AU
retrograde	4240 Feb 22 01:12	18°♄38'15		retrograde	4247 Mar 26 10:37	21°♄24'37	
opposition	4240 May 05 19:22	16°♄36'06	0°32'50	opposition	4247 Jun 08 23:03	19°♄23'45	0°06'25
min. Earth dist.	4240 May 06 12:05	16°♄34'17	17.37644 AU	min. Earth dist.	4247 Jun 09 07:17	19°♄22'53	17.63250 AU
	4240 Jun 17 00:05	15°♄		direct	4247 Aug 24 23:18	17°♄19'30	
direct	4240 Jul 21 09:40	14°♄30'08					
	4240 Aug 24 04:11	15°♄		conjunction	4247 Dec 14 03:27	21°♄43'51	0°03'58
				minimum elong	4247 Dec 14 03:26	21°♄43'51	0°03'58
conjunction	4240 Nov 10 12:08	19°♄00'17	0°27'57	behind sun begin	4247 Dec 13 20:54	21°♄42'52	
minimum elong	4240 Nov 10 12:08	19°♄00'17	0°27'57	behind sun end	4247 Dec 14 09:59	21°♄44'51	
max. Earth dist.	4240 Nov 09 17:21	18°♄57'20	19.38594 AU	max. Earth dist.	4247 Dec 13 19:21	21°♄42'37	19.65816 AU
retrograde	4241 Feb 25 23:11	23°♄21'59		retrograde	4248 Mar 30 07:37	26°♄00'51	
opposition	4241 May 10 20:06	21°♄19'57	0°29'29	opposition	4248 Jun 12 22:45	24°♄00'08	0°02'20
min. Earth dist.	4241 May 11 11:57	21°♄18'14	17.39746 AU	min. Earth dist.	4248 Jun 13 04:35	23°♄59'31	17.68415 AU
direct	4241 Jul 26 12:20	19°♄14'05		direct	4248 Aug 29 01:06	21°♄56'12	
conjunction	4241 Nov 15 12:59	23°♄43'44	0°24'52	conjunction	4248 Dec 17 23:18	26°♄19'21	0°00'14
minimum elong	4241 Nov 15 12:59	23°♄43'44	0°24'53	minimum elong	4248 Dec 17 23:19	26°♄19'21	0°00'15
max. Earth dist.	4241 Nov 14 20:22	23°♄41'08	19.41003 AU	behind sun begin	4248 Dec 17 16:46	26°♄18'21	
retrograde	4242 Mar 02 22:12	28°♄04'53		behind sun end	4248 Dec 18 05:52	26°♄20'20	
opposition	4242 May 15 20:51	26°♄03'00	0°25'57	max. Earth dist.	4248 Dec 17 17:18	26°♄18'26	19.71085 AU
min. Earth dist.	4242 May 16 10:56	26°♄01'29	17.42437 AU	desc. node	4249 Jan 09 19:10	27°♄43'06	
direct	4242 Jul 31 15:45	23°♄57'19			4249 Feb 26 19:36	0°♄	
				retrograde	4249 Apr 04 02:09	0°♄35'30	
conjunction	4242 Nov 20 13:07	28°♄26'20	0°21'38		4249 May 11 11:12	30°♄	
minimum elong	4242 Nov 20 13:07	28°♄26'20	0°21'38	opposition	4249 Jun 17 22:02	28°♄34'57	0°-1'44
max. Earth dist.	4242 Nov 19 21:29	28°♄23'54	19.43991 AU	min. Earth dist.	4249 Jun 18 03:35	28°♄34'22	17.73783 AU
	4242 Dec 15 21:35	0°♄		direct	4249 Sep 03 01:02	26°♄31'19	

	4249 Dec 08 09:03	0°♄			4256 Dec 19 11:28	0°♁	
conjunction	4249 Dec 22 18:13	0°♄53'11	0°-3'-29	conjunction	4257 Jan 22 04:46	1°♁58'00	0°-26'-38
minimum elong	4249 Dec 22 18:14	0°♄53'11	0°03'30	minimum elong	4257 Jan 22 04:46	1°♁58'00	0°26'39
behind sun begin	4249 Dec 22 11:40	0°♄52'12		max. Earth dist.	4257 Jan 22 12:32	1°♁59'10	20.19090 AU
behind sun end	4249 Dec 23 00:47	0°♄54'10		retrograde	4257 May 09 14:15	6°♁07'18	
max. Earth dist.	4249 Dec 22 12:49	0°♄52'23	19.76545 AU	opposition	4257 Jul 24 19:52	4°♁07'44	0°-31'-5
retrograde	4250 Apr 08 21:50	5°♄08'29		min. Earth dist.	4257 Jul 24 12:01	4°♁08'33	18.22346 AU
opposition	4250 Jun 22 20:49	3°♄08'04	0°-5'-47	direct	4257 Oct 10 00:39	2°♁06'46	
min. Earth dist.	4250 Jun 22 23:58	3°♄07'44	17.79316 AU				
direct	4250 Sep 08 01:39	1°♄04'43		conjunction	4258 Jan 26 16:38	6°♁17'21	0°-29'-23
				minimum elong	4258 Jan 26 16:38	6°♁17'21	0°29'24
conjunction	4250 Dec 27 12:15	5°♄25'15	0°-7'-5	max. Earth dist.	4258 Jan 27 00:56	6°♁18'36	20.25630 AU
minimum elong	4250 Dec 27 12:15	5°♄25'15	0°07'06	retrograde	4258 May 14 05:08	10°♁25'54	
behind sun begin	4250 Dec 27 06:09	5°♄24'20		opposition	4258 Jul 29 13:52	8°♁26'31	0°-34'-2
behind sun end	4250 Dec 27 18:21	5°♄26'10		min. Earth dist.	4258 Jul 29 04:19	8°♁27'29	18.28885 AU
max. Earth dist.	4250 Dec 27 09:16	5°♄24'49	19.82150 AU	direct	4258 Oct 14 16:13	6°♁25'56	
retrograde	4251 Apr 13 15:00	9°♄39'40					
opposition	4251 Jun 27 19:15	7°♄39'22	0°-9'-47	conjunction	4259 Jan 31 03:52	10°♁35'09	0°-31'-58
min. Earth dist.	4251 Jun 27 21:51	7°♄39'06	17.84993 AU	minimum elong	4259 Jan 31 03:52	10°♁35'09	0°31'58
direct	4251 Sep 13 00:38	5°♄36'19		max. Earth dist.	4259 Jan 31 14:46	10°♁36'48	20.32135 AU
				retrograde	4259 May 18 18:55	14°♁42'59	
conjunction	4252 Jan 01 05:14	9°♄55'27	0°-10'-38	opposition	4259 Aug 03 07:18	12°♁43'45	0°-36'-46
minimum elong	4252 Jan 01 05:14	9°♄55'27	0°10'37	min. Earth dist.	4259 Aug 02 20:28	12°♁44'51	18.35342 AU
behind sun begin	4252 Jan 01 00:06	9°♄54'40		direct	4259 Oct 19 09:27	10°♁43'35	
behind sun end	4252 Jan 01 10:22	9°♄56'13					
max. Earth dist.	4252 Jan 01 02:56	9°♄55'06	19.87911 AU	conjunction	4260 Feb 04 14:23	14°♁51'27	0°-34'-21
retrograde	4252 Apr 17 09:13	14°♄08'59		minimum elong	4260 Feb 04 14:23	14°♁51'27	0°34'22
opposition	4252 Jul 01 16:51	12°♄08'45	0°-13'-41	max. Earth dist.	4260 Feb 05 01:36	14°♁53'08	20.38531 AU
min. Earth dist.	4252 Jul 01 17:00	12°♄08'44	17.90833 AU		4260 Feb 06 23:21	15°♁	
direct	4252 Sep 16 23:36	10°♄05'59		retrograde	4260 May 22 08:49	18°♁58'35	
				opposition	4260 Aug 07 00:00	16°♁59'29	0°-39'-18
conjunction	4253 Jan 04 21:20	14°♄23'41	0°-14'-5	min. Earth dist.	4260 Aug 06 12:02	17°♁00'41	18.41675 AU
minimum elong	4253 Jan 04 21:20	14°♄23'41	0°14'06		4260 Oct 19 11:57	15°♁	
behind sun begin	4253 Jan 04 17:58	14°♄23'11		direct	4260 Oct 22 23:29	14°♁59'41	
behind sun end	4253 Jan 05 00:41	14°♄24'11			4260 Oct 26 11:55	15°♁	
max. Earth dist.	4253 Jan 04 21:49	14°♄23'46	19.93826 AU				
retrograde	4253 Apr 22 00:46	18°♄36'19		conjunction	4261 Feb 08 00:30	19°♁06'14	0°-36'-32
opposition	4253 Jul 06 13:59	16°♄36'12	0°-17'-28	minimum elong	4261 Feb 08 00:30	19°♁06'14	0°36'32
min. Earth dist.	4253 Jul 06 13:15	16°♄36'17	17.96828 AU	max. Earth dist.	4261 Feb 08 13:52	19°♁08'14	20.44758 AU
direct	4253 Sep 21 20:54	14°♄33'45		retrograde	4261 May 26 21:43	23°♁12'41	
				opposition	4261 Aug 11 16:09	21°♁13'42	0°-41'-36
conjunction	4254 Jan 09 12:23	18°♄49'59	0°-17'-25	min. Earth dist.	4261 Aug 11 02:58	21°♁15'02	18.47784 AU
minimum elong	4254 Jan 09 12:22	18°♄49'59	0°17'26	direct	4261 Oct 27 15:44	19°♁14'17	
max. Earth dist.	4254 Jan 09 13:37	18°♄50'10	19.99909 AU				
retrograde	4254 Apr 26 17:44	23°♄01'45		conjunction	4262 Feb 12 09:47	23°♁19'32	0°-38'-30
opposition	4254 Jul 11 10:20	21°♄01'44	0°-21'-7	minimum elong	4262 Feb 12 09:47	23°♁19'32	0°38'32
min. Earth dist.	4254 Jul 11 07:09	21°♄02'03	18.03004 AU	max. Earth dist.	4262 Feb 12 23:12	23°♁21'32	20.50734 AU
direct	4254 Sep 26 17:32	18°♄59'35		retrograde	4262 May 31 10:32	27°♁25'20	
				opposition	4262 Aug 16 07:46	25°♁26'26	0°-43'-39
conjunction	4255 Jan 14 02:45	23°♄14'24	0°-20'-38	min. Earth dist.	4262 Aug 15 17:54	25°♁27'50	18.53633 AU
minimum elong	4255 Jan 14 02:45	23°♄14'24	0°20'40	direct	4262 Nov 01 04:58	23°♁27'19	
max. Earth dist.	4255 Jan 14 06:58	23°♄15'02	20.06166 AU				
retrograde	4255 May 01 08:13	27°♄25'19		conjunction	4263 Feb 16 18:46	27°♁31'19	0°-40'-16
opposition	4255 Jul 16 06:16	25°♄25'26	0°-24'-37	minimum elong	4263 Feb 16 18:45	27°♁31'19	0°40'17
min. Earth dist.	4255 Jul 16 01:48	25°♄25'53	18.09341 AU	max. Earth dist.	4263 Feb 17 10:00	27°♁33'35	20.56427 AU
direct	4255 Oct 01 12:50	23°♄23'40			4263 Apr 02 12:51	0°♁	
				retrograde	4263 Jun 04 22:07	1°♁36'29	
conjunction	4256 Jan 18 16:00	27°♄37'02	0°-23'-43		4263 Aug 11 15:24	30°♁	
minimum elong	4256 Jan 18 16:00	27°♄37'02	0°23'43	opposition	4263 Aug 20 22:44	29°♁37'38	0°-45'-28
max. Earth dist.	4256 Jan 18 20:59	27°♄37'47	20.12579 AU	min. Earth dist.	4263 Aug 20 07:35	29°♁39'09	18.59162 AU
	4256 Feb 29 06:08	0°♁		direct	4263 Nov 05 20:04	27°♁38'49	
retrograde	4256 May 05 00:09	1°♁47'09			4264 Jan 22 15:54	0°♁	
	4256 Jul 14 22:27	30°♁♄					
opposition	4256 Jul 20 01:26	29°♄47'24	0°-27'-56	conjunction	4264 Feb 21 02:57	1°♁41'34	0°-41'-48
min. Earth dist.	4256 Jul 19 18:48	29°♄48'05	18.15817 AU	minimum elong	4264 Feb 21 02:57	1°♁41'34	0°41'49
direct	4256 Oct 05 06:47	27°♄46'01		max. Earth dist.	4264 Feb 21 18:07	1°♁43'49	20.61790 AU

retrograde	4264 Jun 08 09:46	5° <del>✕</del> 46'08		retrograde	4272 Jul 11 11:55	8° <del>☿</del> 17'35	
opposition	4264 Aug 24 13:04	3° <del>✕</del> 47'17	0°-47'-2	opposition	4272 Sep 27 09:32	6° <del>☿</del> 18'44	0°-50'-16
min. Earth dist.	4264 Aug 23 21:34	3° <del>✕</del> 48'50	18.64367 AU	min. Earth dist.	4272 Sep 26 12:49	6° <del>☿</del> 20'48	18.95949 AU
direct	4264 Nov 09 07:59	1° <del>✕</del> 48'41		direct	4272 Dec 12 13:22	4° <del>☿</del> 21'51	
conjunction	4265 Feb 24 10:46	5° <del>✕</del> 50'17	0°-43'-7	conjunction	4273 Mar 28 10:10	8° <del>☿</del> 16'39	0°-45'-11
minimum elong	4265 Feb 24 10:46	5° <del>✕</del> 50'17	0°43'08	minimum elong	4273 Mar 28 10:10	8° <del>☿</del> 16'39	0°45'12
max. Earth dist.	4265 Feb 25 03:37	5° <del>✕</del> 52'46	20.66825 AU	max. Earth dist.	4273 Mar 29 08:46	8° <del>☿</del> 19'54	20.97226 AU
retrograde	4265 Jun 12 19:47	9° <del>✕</del> 54'14		retrograde	4273 Jul 15 21:22	12° <del>☿</del> 18'04	
min. Earth dist.	4265 Aug 28 09:41	7° <del>✕</del> 57'04	18.69239 AU	opposition	4273 Oct 01 18:55	10° <del>☿</del> 19'15	0°-49'-33
opposition	4265 Aug 29 02:30	7° <del>✕</del> 55'22	0°-48'-21	min. Earth dist.	4273 Sep 30 21:12	10° <del>☿</del> 21'25	18.98471 AU
direct	4265 Nov 13 21:27	5° <del>✕</del> 57'00		direct	4273 Dec 16 21:38	8° <del>☿</del> 22'34	
conjunction	4266 Feb 28 17:51	9° <del>✕</del> 57'26	0°-44'-11	conjunction	4274 Apr 01 15:22	12° <del>☿</del> 16'54	0°-44'-26
minimum elong	4266 Feb 28 17:51	9° <del>✕</del> 57'26	0°44'12	minimum elong	4274 Apr 01 15:22	12° <del>☿</del> 16'54	0°44'28
max. Earth dist.	4266 Mar 01 10:47	9° <del>✕</del> 59'56	20.71551 AU	max. Earth dist.	4274 Apr 02 13:19	12° <del>☿</del> 20'04	20.99527 AU
retrograde	4266 Jun 17 05:59	14° <del>✕</del> 00'53		retrograde	4274 Jul 20 04:58	16° <del>☿</del> 18'16	
opposition	4266 Sep 02 15:35	12° <del>✕</del> 01'58	0°-49'-23	min. Earth dist.	4274 Oct 05 07:35	14° <del>☿</del> 21'32	19.00549 AU
min. Earth dist.	4266 Sep 01 22:27	12° <del>✕</del> 03'41	18.73841 AU	opposition	4274 Oct 06 04:15	14° <del>☿</del> 19'28	0°-48'-35
direct	4266 Nov 18 07:56	10° <del>✕</del> 03'47		direct	4274 Dec 21 03:23	12° <del>☿</del> 22'55	
conjunction	4267 Mar 05 00:29	14° <del>✕</del> 03'10	0°-45'-1	conjunction	4275 Apr 05 20:42	16° <del>☿</del> 16'52	0°-43'-28
minimum elong	4267 Mar 05 00:29	14° <del>☿</del> 03'10	0°45'03	minimum elong	4275 Apr 05 20:42	16° <del>☿</del> 16'52	0°43'29
max. Earth dist.	4267 Mar 05 19:16	14° <del>☿</del> 05'55	20.76018 AU	max. Earth dist.	4275 Apr 06 19:10	16° <del>☿</del> 20'06	21.01361 AU
retrograde	4267 Jun 21 15:39	18° <del>✕</del> 06'07		retrograde	4275 Jul 24 14:12	20° <del>☿</del> 18'13	
min. Earth dist.	4267 Sep 06 09:09	16° <del>☿</del> 09'03	18.78182 AU	opposition	4275 Oct 10 13:06	18° <del>☿</del> 19'25	0°-47'-24
opposition	4267 Sep 07 03:52	16° <del>☿</del> 07'11	0°-50'-10	min. Earth dist.	4275 Oct 09 15:46	18° <del>☿</del> 21'32	19.02116 AU
direct	4267 Nov 22 19:29	14° <del>☿</del> 09'13		direct	4275 Dec 25 10:59	16° <del>☿</del> 22'58	
conjunction	4268 Mar 08 06:42	18° <del>☿</del> 07'36	0°-45'-37	conjunction	4276 Apr 09 02:07	20° <del>☿</del> 16'36	0°-42'-18
minimum elong	4268 Mar 08 06:42	18° <del>☿</del> 07'36	0°45'37	minimum elong	4276 Apr 09 02:07	20° <del>☿</del> 16'36	0°42'19
max. Earth dist.	4268 Mar 09 01:36	18° <del>☿</del> 10'22	20.80236 AU	max. Earth dist.	4276 Apr 09 23:28	20° <del>☿</del> 19'40	21.02654 AU
retrograde	4268 Jun 25 00:31	22° <del>☿</del> 10'08		retrograde	4276 Jul 27 21:42	24° <del>☿</del> 17'58	
opposition	4268 Sep 10 15:31	20° <del>☿</del> 11'11	0°-50'-42	opposition	4276 Oct 13 21:40	22° <del>☿</del> 19'06	0°-45'-59
min. Earth dist.	4268 Sep 09 20:45	20° <del>☿</del> 13'04	18.82295 AU	min. Earth dist.	4276 Oct 13 01:48	22° <del>☿</del> 21'05	19.03141 AU
direct	4268 Nov 26 04:23	18° <del>☿</del> 13'25		direct	4276 Dec 28 16:16	20° <del>☿</del> 22'43	
conjunction	4269 Mar 12 12:42	22° <del>☿</del> 10'56	0°-45'-59	conjunction	4277 Apr 13 07:40	24° <del>☿</del> 16'06	0°-40'-55
minimum elong	4269 Mar 12 12:42	22° <del>☿</del> 10'56	0°46'01	minimum elong	4277 Apr 13 07:40	24° <del>☿</del> 16'06	0°40'56
max. Earth dist.	4269 Mar 13 09:12	22° <del>☿</del> 13'55	20.84223 AU	max. Earth dist.	4277 Apr 14 05:11	24° <del>☿</del> 19'11	21.03410 AU
retrograde	4269 Jun 29 10:23	26° <del>☿</del> 13'06		retrograde	4277 Aug 01 06:35	28° <del>☿</del> 17'30	
min. Earth dist.	4269 Sep 14 06:20	24° <del>☿</del> 16'12	18.86149 AU	min. Earth dist.	4277 Oct 17 09:32	26° <del>☿</del> 20'36	19.03616 AU
opposition	4269 Sep 15 02:37	24° <del>☿</del> 14'10	0°-50'-58	opposition	4277 Oct 18 05:57	26° <del>☿</del> 18'33	0°-44'-20
direct	4269 Nov 30 14:25	22° <del>☿</del> 16'38		direct	4278 Jan 01 23:40	24° <del>☿</del> 22'10	
conjunction	4270 Mar 16 18:08	26° <del>☿</del> 13'20	0°-46'-8	conjunction	4278 Apr 17 13:01	28° <del>☿</del> 15'21	0°-39'-20
minimum elong	4270 Mar 16 18:08	26° <del>☿</del> 13'20	0°46'09	minimum elong	4278 Apr 17 13:01	28° <del>☿</del> 15'21	0°39'21
max. Earth dist.	4270 Mar 17 14:42	26° <del>☿</del> 16'19	20.87942 AU	max. Earth dist.	4278 Apr 18 09:31	28° <del>☿</del> 18'17	21.03625 AU
	4270 Jun 08 21:04	0° <del>☿</del>			4278 May 18 22:55	0° <del>♄</del>	
retrograde	4270 Jul 03 18:26	0° <del>☿</del> 15'15		retrograde	4278 Aug 05 13:55	2° <del>♄</del> 16'51	
	4270 Jul 29 01:34	30° <del>♄</del>		opposition	4278 Oct 22 14:10	0° <del>♄</del> 17'46	0°-42'-29
opposition	4270 Sep 19 13:27	28° <del>☿</del> 16'19	0°-50'-59	min. Earth dist.	4278 Oct 21 19:14	0° <del>♄</del> 19'40	19.03585 AU
min. Earth dist.	4270 Sep 18 17:21	28° <del>☿</del> 18'20	18.89739 AU		4278 Oct 29 23:44	30° <del>♄</del>	
direct	4270 Dec 04 21:58	26° <del>☿</del> 19'01		direct	4279 Jan 06 04:17	28° <del>☿</del> 21'21	
	4271 Mar 16 16:26	0° <del>☿</del>			4279 Mar 11 06:40	0° <del>♄</del>	
conjunction	4271 Mar 20 23:39	0° <del>☿</del> 14'59	0°-46'-2	conjunction	4279 Apr 21 18:44	2° <del>♄</del> 14'23	0°-37'-34
minimum elong	4271 Mar 20 23:39	0° <del>☿</del> 14'59	0°46'03	minimum elong	4279 Apr 21 18:44	2° <del>♄</del> 14'23	0°37'35
max. Earth dist.	4271 Mar 21 21:35	0° <del>☿</del> 18'10	20.91385 AU	max. Earth dist.	4279 Apr 22 15:28	2° <del>♄</del> 17'22	21.03367 AU
retrograde	4271 Jul 08 04:18	4° <del>☿</del> 16'40		retrograde	4279 Aug 09 22:56	6° <del>♄</del> 16'01	
opposition	4271 Sep 23 23:36	2° <del>☿</del> 17'47	0°-50'-45	opposition	4279 Oct 26 21:46	4° <del>♄</del> 16'47	0°-40'-25
min. Earth dist.	4271 Sep 23 02:12	2° <del>☿</del> 19'55	18.93018 AU	min. Earth dist.	4279 Oct 26 02:21	4° <del>♄</del> 18'44	19.03099 AU
direct	4271 Dec 09 07:01	0° <del>☿</del> 20'42		direct	4280 Jan 10 11:29	2° <del>♄</del> 20'18	
conjunction	4272 Mar 24 04:53	4° <del>☿</del> 16'03	0°-45'-43	conjunction	4280 Apr 25 00:28	6° <del>♄</del> 13'19	0°-35'-36
minimum elong	4272 Mar 24 04:53	4° <del>☿</del> 16'03	0°45'45	minimum elong	4280 Apr 25 00:29	6° <del>♄</del> 13'19	0°35'37
max. Earth dist.	4272 Mar 25 02:32	4° <del>☿</del> 19'11	20.94491 AU	max. Earth dist.	4280 Apr 25 20:12	6° <del>♄</del> 16'08	21.02670 AU

retrograde	4280 Aug 13 06:10	10°♄15'08		conjunction	4288 May 27 12:19	8°♄19'21	0°-14'-38
min. Earth dist.	4280 Oct 29 11:31	8°♄17'33	19.02209 AU	minimum elong	4288 May 27 12:19	8°♄19'21	0°14'40
opposition	4280 Oct 30 05:26	8°♄15'45	0°-38'-10	behind sun begin	4288 May 27 09:37	8°♄18'58	
direct	4281 Jan 13 15:30	6°♄19'11		behind sun end	4288 May 27 15:02	8°♄19'44	
				max. Earth dist.	4288 May 28 01:41	8°♄21'16	20.84465 AU
conjunction	4281 Apr 29 06:26	10°♄12'15	0°-33'-29	retrograde	4288 Sep 15 11:49	12°♄24'43	
minimum elong	4281 Apr 29 06:26	10°♄12'15	0°33'31	opposition	4288 Dec 01 17:50	10°♄24'37	0°-14'-23
max. Earth dist.	4281 Apr 30 02:23	10°♄15'07	21.01596 AU	min. Earth dist.	4288 Dec 01 06:44	10°♄25'45	18.82525 AU
retrograde	4281 Aug 17 15:36	14°♄14'18		direct	4289 Feb 14 13:31	8°♄27'11	
opposition	4281 Nov 03 12:48	12°♄14'48	0°-35'-43				
min. Earth dist.	4281 Nov 02 18:18	12°♄16'40	19.00951 AU	conjunction	4289 May 31 22:23	12°♄24'11	0°-11'-30
direct	4282 Jan 17 22:25	10°♄18'09		minimum elong	4289 May 31 22:24	12°♄24'11	0°11'31
				behind sun begin	4289 May 31 17:37	12°♄23'31	
conjunction	4282 May 03 12:40	14°♄11'23	0°-31'-12	behind sun end	4289 Jun 01 03:10	12°♄24'51	
minimum elong	4282 May 03 12:40	14°♄11'23	0°31'12	max. Earth dist.	4289 Jun 01 10:34	12°♄25'55	20.80466 AU
max. Earth dist.	4282 May 04 07:35	14°♄14'05	21.00167 AU	retrograde	4289 Sep 20 00:56	16°♄30'12	
	4282 May 17 18:16	15°♄		opposition	4289 Dec 06 02:08	14°♄29'59	0°-10'-52
retrograde	4282 Aug 21 23:26	18°♄13'44		min. Earth dist.	4289 Dec 05 15:28	14°♄31'04	18.78291 AU
opposition	4282 Nov 07 20:15	16°♄14'06	0°-33'-6	direct	4290 Feb 18 21:36	12°♄32'20	
min. Earth dist.	4282 Nov 07 03:18	16°♄15'49	18.99360 AU				
	4282 Dec 10 21:33	15°♄		conjunction	4290 Jun 05 09:14	16°♄30'11	0°-8'-17
direct	4283 Jan 22 02:31	14°♄17'21		minimum elong	4290 Jun 05 09:14	16°♄30'11	0°08'19
	4283 Mar 04 05:24	15°♄		behind sun begin	4290 Jun 05 03:21	16°♄29'21	
				behind sun end	4290 Jun 05 15:07	16°♄31'00	
conjunction	4283 May 07 19:20	18°♄10'51	0°-28'-45	max. Earth dist.	4290 Jun 05 19:28	16°♄31'38	20.76008 AU
minimum elong	4283 May 07 19:21	18°♄10'51	0°28'47	retrograde	4290 Sep 24 11:11	20°♄36'51	
max. Earth dist.	4283 May 08 14:14	18°♄13'33	20.98420 AU	opposition	4290 Dec 10 10:45	18°♄36'29	0°-7'-17
retrograde	4283 Aug 26 09:22	22°♄13'33		min. Earth dist.	4290 Dec 10 02:32	18°♄37'20	18.73620 AU
min. Earth dist.	4283 Nov 11 10:09	20°♄15'35	18.97438 AU	direct	4291 Feb 23 03:48	16°♄38'34	
opposition	4283 Nov 12 03:30	20°♄13'49	0°-30'-20				
direct	4284 Jan 26 09:01	18°♄17'00		conjunction	4291 Jun 09 20:45	20°♄37'19	0°-5'-2
				minimum elong	4291 Jun 09 20:46	20°♄37'19	0°05'03
conjunction	4284 May 11 02:23	22°♄10'50	0°-26'-10	behind sun begin	4291 Jun 09 14:16	20°♄36'24	
minimum elong	4284 May 11 02:23	22°♄10'50	0°26'11	behind sun end	4291 Jun 10 03:16	20°♄38'14	
max. Earth dist.	4284 May 11 20:01	22°♄13'22	20.96330 AU	max. Earth dist.	4291 Jun 10 05:33	20°♄38'34	20.71150 AU
retrograde	4284 Aug 29 18:02	26°♄13'58		retrograde	4291 Sep 29 01:00	24°♄44'41	
opposition	4284 Nov 15 10:51	24°♄14'09	0°-27'-24	opposition	4291 Dec 14 19:28	22°♄44'08	0°-3'-38
min. Earth dist.	4284 Nov 14 19:17	24°♄15'44	18.95185 AU	min. Earth dist.	4291 Dec 14 11:49	22°♄44'55	18.68566 AU
direct	4285 Jan 29 13:31	22°♄17'14		direct	4292 Feb 27 13:16	20°♄45'55	
conjunction	4285 May 15 09:59	26°♄11'32	0°-23'-27	conjunction	4292 Jun 13 08:50	24°♄45'38	0°-1'-42
minimum elong	4285 May 15 09:59	26°♄11'32	0°23'29	minimum elong	4292 Jun 13 08:50	24°♄45'38	0°01'43
max. Earth dist.	4285 May 16 03:19	26°♄14'01	20.93923 AU	behind sun begin	4292 Jun 13 02:08	24°♄44'41	
	4285 Aug 09 05:53	0°♄		behind sun end	4292 Jun 13 15:33	24°♄46'34	
retrograde	4285 Sep 03 04:39	0°♄15'09		max. Earth dist.	4292 Jun 13 15:53	24°♄46'38	20.65921 AU
	4285 Sep 28 08:37	30°♄		retrograde	4292 Oct 02 11:36	28°♄53'41	
opposition	4285 Nov 19 18:17	28°♄15'15	0°-24'-20	asc. node	4292 Dec 13 21:12	27°♄03'40	
min. Earth dist.	4285 Nov 19 02:30	28°♄16'52	18.92599 AU	opposition	4292 Dec 18 04:32	26°♄52'57	0°00'03
direct	4286 Feb 02 19:53	26°♄18'15		min. Earth dist.	4292 Dec 17 23:12	26°♄53'30	18.63188 AU
	4286 May 15 22:43	0°♄		direct	4293 Mar 02 20:08	24°♄54'24	
conjunction	4286 May 19 17:57	0°♄13'05	0°-20'-37	conjunction	4293 Jun 17 21:38	28°♄55'09	0°01'44
minimum elong	4286 May 19 17:57	0°♄13'05	0°20'39	minimum elong	4293 Jun 17 21:39	28°♄55'09	0°01'44
max. Earth dist.	4286 May 20 09:54	0°♄15'22	20.91159 AU	behind sun begin	4293 Jun 17 14:56	28°♄54'13	
retrograde	4286 Sep 07 14:06	4°♄17'15		behind sun end	4293 Jun 18 04:21	28°♄56'06	
opposition	4286 Nov 24 02:02	2°♄17'18	0°-21'-8	max. Earth dist.	4293 Jun 18 03:16	28°♄55'56	20.60427 AU
min. Earth dist.	4286 Nov 23 12:18	2°♄18'42	18.89650 AU		4293 Jul 06 16:48	0°♄	
direct	4287 Feb 07 00:57	0°♄20'11		retrograde	4293 Oct 07 01:53	3°♄03'57	
				opposition	4293 Dec 22 13:49	1°♄03'01	0°03'45
conjunction	4287 May 24 02:50	4°♄15'40	0°-17'-41	min. Earth dist.	4293 Dec 22 08:58	1°♄03'31	18.57578 AU
minimum elong	4287 May 24 02:50	4°♄15'40	0°17'42		4294 Jan 18 03:24	30°♄	
max. Earth dist.	4287 May 24 18:02	4°♄17'50	20.88028 AU	direct	4294 Mar 07 06:47	29°♄04'07	
retrograde	4287 Sep 12 01:57	8°♄20'24			4294 Apr 23 04:02	0°♄	
opposition	4287 Nov 28 09:39	6°♄20'23	0°-17'-49				
min. Earth dist.	4287 Nov 27 20:12	6°♄21'46	18.86307 AU	conjunction	4294 Jun 22 11:06	3°♄05'59	0°05'06
direct	4288 Feb 11 07:52	4°♄23'08		minimum elong	4294 Jun 22 11:06	3°♄05'59	0°05'07
				behind sun begin	4294 Jun 22 04:35	3°♄05'03	

behind sun end	4294 Jun 22 17:37	3° $\mathring{U}$ 06'54		retrograde	4301 Nov 12 04:10	7° $\mathring{O}$ 21'55	
max. Earth dist.	4294 Jun 22 15:16	3° $\mathring{U}$ 06'33	20.54711 AU	opposition	4302 Jan 26 09:52	5° $\mathring{O}$ 20'02	0°31'46
retrograde	4294 Oct 11 13:23	7° $\mathring{U}$ 15'32		min. Earth dist.	4302 Jan 26 16:13	5° $\mathring{O}$ 19'22	18.09322 AU
opposition	4294 Dec 26 23:37	5° $\mathring{U}$ 14'25	0°07'27	direct	4302 Apr 11 02:59	3° $\mathring{O}$ 18'28	
min. Earth dist.	4294 Dec 26 20:55	5° $\mathring{U}$ 14'42	18.51778 AU				
direct	4295 Mar 11 14:55	3° $\mathring{U}$ 15'10		conjunction	4302 Jul 29 05:27	7° $\mathring{O}$ 31'07	0°29'59
				minimum elong	4302 Jul 29 05:27	7° $\mathring{O}$ 31'07	0°29'59
conjunction	4295 Jun 27 01:27	7° $\mathring{U}$ 18'11	0°08'25	max. Earth dist.	4302 Jul 28 20:57	7° $\mathring{O}$ 29'52	20.06201 AU
minimum elong	4295 Jun 27 01:27	7° $\mathring{U}$ 18'11	0°08'25	retrograde	4302 Nov 16 22:17	11° $\mathring{O}$ 47'21	
behind sun begin	4295 Jun 26 19:34	7° $\mathring{U}$ 17'21		opposition	4303 Jan 31 00:13	9° $\mathring{O}$ 45'23	0°34'47
behind sun end	4295 Jun 27 07:19	7° $\mathring{U}$ 19'01		min. Earth dist.	4303 Jan 31 08:26	9° $\mathring{O}$ 44'30	18.03055 AU
max. Earth dist.	4295 Jun 27 03:58	7° $\mathring{U}$ 18'32	20.48849 AU	direct	4303 Apr 15 17:24	7° $\mathring{O}$ 43'27	
retrograde	4295 Oct 16 04:15	11° $\mathring{U}$ 28'31					
opposition	4295 Dec 31 09:35	9° $\mathring{U}$ 27'14	0°11'09	conjunction	4303 Aug 03 02:44	11° $\mathring{O}$ 57'33	0°32'36
min. Earth dist.	4295 Dec 31 07:25	9° $\mathring{U}$ 27'27	18.45857 AU	minimum elong	4303 Aug 03 02:44	11° $\mathring{O}$ 57'33	0°32'36
direct	4296 Mar 15 02:10	7° $\mathring{U}$ 27'37		max. Earth dist.	4303 Aug 02 15:16	11° $\mathring{O}$ 55'50	19.99913 AU
					4303 Sep 28 04:55	15° $\mathring{O}$	
conjunction	4296 Jun 30 16:32	11° $\mathring{U}$ 31'53	0°11'43	retrograde	4303 Nov 21 17:48	16° $\mathring{O}$ 14'35	
minimum elong	4296 Jun 30 16:32	11° $\mathring{U}$ 31'53	0°11'43		4304 Jan 16 16:22	15° $\mathring{R}$ $\mathring{O}$	
behind sun begin	4296 Jun 30 11:52	11° $\mathring{U}$ 31'13		opposition	4304 Feb 04 15:06	14° $\mathring{O}$ 12'29	0°37'36
behind sun end	4296 Jun 30 21:13	11° $\mathring{U}$ 32'33		min. Earth dist.	4304 Feb 05 00:46	14° $\mathring{O}$ 11'27	17.96759 AU
max. Earth dist.	4296 Jun 30 17:49	11° $\mathring{U}$ 32'04	20.42872 AU	direct	4304 Apr 19 09:32	12° $\mathring{O}$ 10'10	
retrograde	4296 Oct 19 17:14	15° $\mathring{U}$ 43'01			4304 Jul 13 20:19	15° $\mathring{O}$	
opposition	4297 Jan 03 20:18	13° $\mathring{U}$ 41'35	0°14'47				
min. Earth dist.	4297 Jan 03 20:03	13° $\mathring{U}$ 41'37	18.39848 AU	conjunction	4304 Aug 07 00:55	16° $\mathring{O}$ 25'43	0°35'02
direct	4297 Mar 19 11:54	11° $\mathring{U}$ 41'39		minimum elong	4304 Aug 07 00:55	16° $\mathring{O}$ 25'43	0°35'02
				max. Earth dist.	4304 Aug 06 12:43	16° $\mathring{O}$ 23'54	19.93608 AU
conjunction	4297 Jul 05 08:16	15° $\mathring{U}$ 47'11	0°14'59	retrograde	4304 Nov 25 13:06	20° $\mathring{O}$ 43'30	
minimum elong	4297 Jul 05 08:15	15° $\mathring{U}$ 47'11	0°14'58	opposition	4305 Feb 08 06:44	18° $\mathring{O}$ 41'18	0°40'12
behind sun begin	4297 Jul 05 06:01	15° $\mathring{U}$ 46'52		min. Earth dist.	4305 Feb 08 17:49	18° $\mathring{O}$ 40'06	17.90472 AU
behind sun end	4297 Jul 05 10:30	15° $\mathring{U}$ 47'30		direct	4305 Apr 24 01:57	16° $\mathring{O}$ 38'34	
max. Earth dist.	4297 Jul 05 07:46	15° $\mathring{U}$ 47'07	20.36849 AU				
retrograde	4297 Oct 24 08:53	19° $\mathring{U}$ 59'09		conjunction	4305 Aug 11 23:31	20° $\mathring{O}$ 55'32	0°37'16
opposition	4298 Jan 08 07:25	17° $\mathring{U}$ 57'35	0°18'23	minimum elong	4305 Aug 11 23:31	20° $\mathring{O}$ 55'32	0°37'15
min. Earth dist.	4298 Jan 08 07:43	17° $\mathring{U}$ 57'34	18.33807 AU	max. Earth dist.	4305 Aug 11 08:35	20° $\mathring{O}$ 53'17	19.87364 AU
direct	4298 Mar 23 23:47	15° $\mathring{U}$ 57'19		retrograde	4305 Nov 30 09:05	25° $\mathring{O}$ 14'04	
				opposition	4306 Feb 12 22:57	23° $\mathring{O}$ 11'43	0°42'35
conjunction	4298 Jul 10 01:06	20° $\mathring{U}$ 04'12	0°18'10	min. Earth dist.	4306 Feb 13 11:30	23° $\mathring{O}$ 10'21	17.84289 AU
minimum elong	4298 Jul 10 01:06	20° $\mathring{U}$ 04'12	0°18'09	direct	4306 Apr 28 19:18	21° $\mathring{O}$ 08'34	
max. Earth dist.	4298 Jul 09 23:31	20° $\mathring{U}$ 03'58	20.30785 AU				
retrograde	4298 Oct 28 23:46	24° $\mathring{U}$ 17'00		conjunction	4306 Aug 16 23:08	25° $\mathring{O}$ 26'58	0°39'17
opposition	4299 Jan 12 19:05	22° $\mathring{U}$ 15'21	0°21'54	minimum elong	4306 Aug 16 23:08	25° $\mathring{O}$ 26'58	0°39'17
min. Earth dist.	4299 Jan 12 21:19	22° $\mathring{U}$ 15'07	18.27734 AU	max. Earth dist.	4306 Aug 16 07:51	25° $\mathring{O}$ 24'39	19.81243 AU
direct	4299 Mar 28 10:55	20° $\mathring{U}$ 14'46		retrograde	4306 Dec 05 05:40	29° $\mathring{O}$ 46'10	
				opposition	4307 Feb 17 15:38	27° $\mathring{O}$ 43'41	0°44'42
conjunction	4299 Jul 14 18:47	24° $\mathring{U}$ 23'03	0°21'17	min. Earth dist.	4307 Feb 18 05:11	27° $\mathring{O}$ 42'13	17.78257 AU
minimum elong	4299 Jul 14 18:47	24° $\mathring{U}$ 23'03	0°21'17	direct	4307 May 03 13:50	25° $\mathring{O}$ 40'09	
max. Earth dist.	4299 Jul 14 15:00	24° $\mathring{U}$ 22'30	20.24712 AU				
retrograde	4299 Nov 02 16:54	28° $\mathring{U}$ 36'43		conjunction	4307 Aug 21 23:11	29° $\mathring{O}$ 59'55	0°41'03
opposition	4300 Jan 17 07:20	26° $\mathring{U}$ 35'00	0°25'19	minimum elong	4307 Aug 21 23:11	29° $\mathring{O}$ 59'55	0°41'02
min. Earth dist.	4300 Jan 17 10:28	26° $\mathring{U}$ 34'40	18.21646 AU	max. Earth dist.	4307 Aug 21 05:25	29° $\mathring{O}$ 57'13	19.75322 AU
direct	4300 Apr 01 23:57	24° $\mathring{U}$ 34'05			4307 Aug 21 23:45	0° $\mathring{M}$	
				retrograde	4307 Dec 10 01:49	4° $\mathring{M}$ 19'48	
conjunction	4300 Jul 19 13:22	28° $\mathring{U}$ 43'48	0°24'19	opposition	4308 Feb 22 09:08	2° $\mathring{M}$ 17'10	0°46'33
minimum elong	4300 Jul 19 13:22	28° $\mathring{U}$ 43'48	0°24'18	min. Earth dist.	4308 Feb 23 00:05	2° $\mathring{M}$ 15'33	17.72478 AU
max. Earth dist.	4300 Jul 19 08:35	28° $\mathring{U}$ 43'06	20.18593 AU	direct	4308 May 07 08:01	0° $\mathring{M}$ 13'15	
	4300 Aug 10 06:27	0° $\mathring{O}$					
retrograde	4300 Nov 07 09:25	2° $\mathring{O}$ 58'21		conjunction	4308 Aug 25 23:46	4° $\mathring{M}$ 34'22	0°42'34
opposition	4301 Jan 21 20:19	0° $\mathring{O}$ 56'34	0°28'37	minimum elong	4308 Aug 25 23:46	4° $\mathring{M}$ 34'22	0°42'35
min. Earth dist.	4301 Jan 22 01:24	0° $\mathring{O}$ 56'01	18.15507 AU	max. Earth dist.	4308 Aug 25 06:07	4° $\mathring{M}$ 31'40	19.69681 AU
	4301 Feb 13 20:50	30° $\mathring{R}$ $\mathring{U}$		retrograde	4308 Dec 13 23:43	8° $\mathring{M}$ 54'51	
direct	4301 Apr 06 12:28	28° $\mathring{U}$ 55'20		opposition	4309 Feb 26 03:09	6° $\mathring{M}$ 52'08	0°48'07
	4301 May 26 20:49	0° $\mathring{O}$		min. Earth dist.	4309 Feb 26 18:27	6° $\mathring{M}$ 50'28	17.67002 AU
				direct	4309 May 12 04:40	4° $\mathring{M}$ 47'52	
conjunction	4301 Jul 24 08:52	3° $\mathring{O}$ 06'31	0°27'13	max. Earth dist.	4309 Aug 30 05:16	9° $\mathring{M}$ 07'15	19.64385 AU
minimum elong	4301 Jul 24 08:52	3° $\mathring{O}$ 06'31	0°27'13				
max. Earth dist.	4301 Jul 24 01:26	3° $\mathring{O}$ 05'25	20.12434 AU	conjunction	4309 Aug 31 00:53	9° $\mathring{M}$ 10'15	0°43'50



minimum elong	4309 Aug 31 00:53	9° <del>10</del> '15	0°43'50	minimum elong	4317 Oct 09 01:08	16° <del>44</del> '24	0°43'16
retrograde	4309 Dec 18 19:54	13° <del>10</del> '31'20		retrograde	4318 Jan 25 13:27	21° <del>40</del> '57'58	
opposition	4310 Mar 02 21:48	11° <del>10</del> '28'31	0°49'22	opposition	4318 Apr 09 01:44	19° <del>40</del> '55'28	0°47'30
min. Earth dist.	4310 Mar 03 14:28	11° <del>10</del> '26'42	17.61919 AU	min. Earth dist.	4318 Apr 09 21:53	19° <del>40</del> '03'16	17.37321 AU
direct	4310 May 17 00:07	9° <del>10</del> '23'56		direct	4318 Jun 23 22:30	16° <del>40</del> '59'36	
max. Earth dist.	4310 Sep 04 07:16	13° <del>10</del> '44'35	19.59508 AU	max. Earth dist.	4318 Oct 13 05:20	21° <del>40</del> '26'19	19.36646 AU
conjunction	4310 Sep 05 02:43	13° <del>10</del> '47'35	0°44'48	conjunction	4318 Oct 14 04:51	21° <del>40</del> '30'00	0°41'51
minimum elong	4310 Sep 05 02:43	13° <del>10</del> '47'35	0°44'48	minimum elong	4318 Oct 14 04:51	21° <del>40</del> '30'00	0°41'51
retrograde	4310 Dec 23 18:45	18° <del>10</del> '09'11		retrograde	4319 Jan 30 14:10	25° <del>40</del> '53'30	
opposition	4311 Mar 07 17:07	16° <del>10</del> '06'20	0°50'19	opposition	4319 Apr 14 01:26	23° <del>40</del> '51'02	0°45'45
min. Earth dist.	4311 Mar 08 09:38	16° <del>10</del> '04'32	17.57261 AU	min. Earth dist.	4319 Apr 14 20:44	23° <del>40</del> '48'56	17.36160 AU
direct	4311 May 21 22:48	14° <del>10</del> '01'30		direct	4319 Jun 29 01:44	21° <del>40</del> '45'04	
max. Earth dist.	4311 Sep 09 07:57	18° <del>10</del> '23'06	19.55079 AU	max. Earth dist.	4319 Oct 18 10:02	26° <del>40</del> '12'14	19.35709 AU
conjunction	4311 Sep 10 04:50	18° <del>10</del> '26'19	0°45'30	conjunction	4319 Oct 19 08:22	26° <del>40</del> '15'44	0°40'07
minimum elong	4311 Sep 10 04:50	18° <del>10</del> '26'19	0°45'30	minimum elong	4319 Oct 19 08:22	26° <del>40</del> '15'44	0°40'08
retrograde	4311 Dec 28 15:25	22° <del>10</del> '48'25			4319 Dec 28 22:02	0° <del>40</del> ' <del>00</del>	
opposition	4312 Mar 11 13:09	20° <del>10</del> '45'34	0°50'56	retrograde	4320 Feb 04 13:13	0° <del>40</del> ' <del>39</del> '05	
min. Earth dist.	4312 Mar 12 06:58	20° <del>10</del> '43'38	17.53083 AU		4320 Mar 13 23:41	30° <del>40</del> ' <del>30</del>	
direct	4312 May 25 19:51	18° <del>10</del> '40'30		opposition	4320 Apr 18 01:36	28° <del>40</del> '36'39	0°43'40
max. Earth dist.	4312 Sep 13 10:43	23° <del>10</del> '03'15	19.51145 AU	min. Earth dist.	4320 Apr 18 21:24	28° <del>40</del> '34'29	17.35457 AU
conjunction	4312 Sep 14 07:30	23° <del>10</del> '06'28	0°45'53	direct	4320 Jul 03 03:27	26° <del>40</del> '30'36	
minimum elong	4312 Sep 14 07:30	23° <del>10</del> '06'28	0°45'53		4320 Oct 07 01:16	0° <del>40</del> ' <del>00</del>	
retrograde	4313 Jan 01 15:17	27° <del>10</del> '29'00		conjunction	4320 Oct 23 11:30	1° <del>40</del> '01'23	0°38'07
opposition	4313 Mar 16 09:41	25° <del>10</del> '26'12	0°51'13	minimum elong	4320 Oct 23 11:30	1° <del>40</del> '01'23	0°38'07
min. Earth dist.	4313 Mar 17 03:04	25° <del>10</del> '24'18	17.49385 AU	max. Earth dist.	4320 Oct 22 12:33	0° <del>40</del> ' <del>57</del> '47	19.35263 AU
direct	4313 May 30 20:16	23° <del>10</del> '20'59		retrograde	4321 Feb 08 12:51	5° <del>40</del> ' <del>24</del> '31	
conjunction	4313 Sep 19 10:29	27° <del>10</del> '47'58	0°45'59	opposition	4321 Apr 23 01:41	3° <del>40</del> ' <del>22</del> '05	0°41'17
minimum elong	4313 Sep 19 10:29	27° <del>10</del> '47'58	0°45'59	min. Earth dist.	4321 Apr 23 20:31	3° <del>40</del> ' <del>20</del> '02	17.35269 AU
max. Earth dist.	4313 Sep 18 12:50	27° <del>10</del> '44'37	19.47676 AU	direct	4321 Jul 08 07:17	1° <del>40</del> ' <del>15</del> '58	
	4313 Oct 26 11:52	0° <del>40</del> ' <del>10</del> '53		conjunction	4321 Oct 28 14:26	5° <del>40</del> ' <del>16</del> '45	0°35'51
retrograde	4314 Jan 06 13:10	2° <del>40</del> ' <del>10</del> '53		minimum elong	4321 Oct 28 14:26	5° <del>40</del> ' <del>16</del> '45	0°35'52
opposition	4314 Mar 21 07:02	0° <del>40</del> ' <del>08</del> '09	0°51'10	max. Earth dist.	4321 Oct 27 17:17	5° <del>40</del> ' <del>13</del> '26	19.35336 AU
min. Earth dist.	4314 Mar 22 01:53	0° <del>40</del> ' <del>06</del> '06	17.46147 AU	retrograde	4322 Feb 13 11:31	10° <del>40</del> ' <del>09</del> '33	
	4314 Mar 24 09:46	30° <del>40</del> ' <del>00</del> ' <del>00</del>		opposition	4322 Apr 28 02:11	8° <del>40</del> ' <del>07</del> '11	0°38'37
direct	4314 Jun 04 18:38	28° <del>40</del> ' <del>02</del> '47		min. Earth dist.	4322 Apr 28 20:53	8° <del>40</del> ' <del>05</del> '09	17.35606 AU
	4314 Aug 12 17:09	0° <del>40</del> ' <del>10</del> '53		direct	4322 Jul 13 10:03	6° <del>40</del> ' <del>01</del> '03	
conjunction	4314 Sep 24 13:56	2° <del>40</del> ' <del>30</del> '43	0°45'46	conjunction	4322 Nov 02 16:42	10° <del>40</del> ' <del>31</del> '40	0°33'20
minimum elong	4314 Sep 24 13:56	2° <del>40</del> ' <del>30</del> '43	0°45'46	minimum elong	4322 Nov 02 16:43	10° <del>40</del> ' <del>31</del> '40	0°33'20
max. Earth dist.	4314 Sep 23 15:54	2° <del>40</del> ' <del>27</del> '18	19.44654 AU	max. Earth dist.	4322 Nov 01 19:22	10° <del>40</del> ' <del>28</del> '19	19.35964 AU
retrograde	4315 Jan 11 13:53	6° <del>40</del> ' <del>53</del> '55		retrograde	4323 Feb 18 10:32	14° <del>40</del> ' <del>54</del> '07	
opposition	4315 Mar 26 04:48	4° <del>40</del> ' <del>51</del> '17	0°50'46	opposition	4323 May 03 02:43	12° <del>40</del> ' <del>51</del> '48	0°35'42
min. Earth dist.	4315 Mar 26 23:10	4° <del>40</del> ' <del>49</del> '16	17.43331 AU	min. Earth dist.	4323 May 03 20:16	12° <del>40</del> ' <del>49</del> '54	17.36534 AU
direct	4315 Jun 09 20:13	2° <del>40</del> ' <del>45</del> '46		direct	4323 Jul 18 14:00	10° <del>40</del> ' <del>45</del> '41	
conjunction	4315 Sep 29 17:38	7° <del>40</del> ' <del>14</del> '31	0°45'15		4323 Nov 03 12:33	15° <del>40</del> ' <del>00</del> ' <del>00</del>	
minimum elong	4315 Sep 29 17:38	7° <del>40</del> ' <del>14</del> '32	0°45'14	conjunction	4323 Nov 07 18:37	15° <del>40</del> ' <del>16</del> '02	0°30'36
max. Earth dist.	4315 Sep 28 19:17	7° <del>40</del> ' <del>11</del> '03	19.42036 AU	minimum elong	4323 Nov 07 18:37	15° <del>40</del> ' <del>16</del> '02	0°30'37
retrograde	4316 Jan 16 13:03	11° <del>40</del> ' <del>37</del> '57		max. Earth dist.	4323 Nov 06 23:35	15° <del>40</del> ' <del>13</del> '03	19.37194 AU
opposition	4316 Mar 30 03:26	9° <del>40</del> ' <del>35</del> '22	0°50'01	retrograde	4324 Feb 23 08:59	19° <del>40</del> ' <del>38</del> '03	
min. Earth dist.	4316 Mar 30 23:09	9° <del>40</del> ' <del>33</del> '13	17.40925 AU	opposition	4324 May 07 03:24	17° <del>40</del> ' <del>35</del> '50	0°32'32
direct	4316 Jun 13 19:45	7° <del>40</del> ' <del>29</del> '44		min. Earth dist.	4324 May 07 19:57	17° <del>40</del> ' <del>34</del> '03	17.38065 AU
conjunction	4316 Oct 03 21:14	11° <del>40</del> ' <del>59</del> '09	0°44'25	direct	4324 Jul 22 17:10	15° <del>40</del> ' <del>29</del> '49	
minimum elong	4316 Oct 03 21:14	11° <del>40</del> ' <del>59</del> '09	0°44'26	conjunction	4324 Nov 11 19:45	19° <del>40</del> ' <del>59</del> '47	0°27'41
max. Earth dist.	4316 Oct 02 22:13	11° <del>40</del> ' <del>55</del> '34	19.39834 AU	minimum elong	4324 Nov 11 19:45	19° <del>40</del> ' <del>59</del> '47	0°27'41
retrograde	4317 Jan 20 14:08	16° <del>40</del> ' <del>22</del> '43		max. Earth dist.	4324 Nov 11 01:01	19° <del>40</del> ' <del>56</del> '51	19.39044 AU
opposition	4317 Apr 04 02:21	14° <del>40</del> ' <del>20</del> '11	0°48'56	retrograde	4325 Feb 27 07:24	24° <del>40</del> ' <del>21</del> '21	
min. Earth dist.	4317 Apr 04 21:22	14° <del>40</del> ' <del>18</del> '06	17.38920 AU	opposition	4325 May 12 04:05	22° <del>40</del> ' <del>19</del> '16	0°29'10
direct	4317 Jun 18 22:09	12° <del>40</del> ' <del>14</del> '25		min. Earth dist.	4325 May 12 19:33	22° <del>40</del> ' <del>17</del> '36	17.40222 AU
max. Earth dist.	4317 Oct 08 02:28	16° <del>40</del> ' <del>40</del> '52	19.38025 AU	direct	4325 Jul 27 20:05	20° <del>40</del> ' <del>13</del> '24	
conjunction	4317 Oct 09 01:08	16° <del>40</del> ' <del>44</del> '24	0°43'17	conjunction	4325 Nov 16 20:35	24° <del>40</del> ' <del>42</del> '54	0°24'34

minimum elong	4325 Nov 16 20:36	24° <del>ℓ</del> 42'54	0°24'34	conjunction	4332 Dec 19 07:07	27° <del>♊</del> 18'29	0°00'-12
max. Earth dist.	4325 Nov 16 04:07	24° <del>ℓ</del> 40'19	19.41504 AU	minimum elong	4332 Dec 19 07:07	27° <del>♊</del> 18'29	0°00'13
retrograde	4326 Mar 04 06:00	29° <del>ℓ</del> 03'56		behind sun begin	4332 Dec 19 00:34	27° <del>♊</del> 17'30	
opposition	4326 May 17 04:39	27° <del>ℓ</del> 02'03	0°25'36	behind sun end	4332 Dec 19 13:39	27° <del>♊</del> 19'28	
min. Earth dist.	4326 May 17 18:41	27° <del>ℓ</del> 00'33	17.42952 AU	max. Earth dist.	4332 Dec 19 00:27	27° <del>♊</del> 17'29	19.70858 AU
direct	4326 Aug 01 23:19	24° <del>ℓ</del> 56'24			4333 Feb 03 22:59	0° <del>♋</del>	
				retrograde	4333 Apr 05 10:03	1° <del>♋</del> 34'39	
conjunction	4326 Nov 21 20:44	29° <del>ℓ</del> 25'19	0°21'18		4333 Jun 08 20:40	30° <del>♊</del>	
minimum elong	4326 Nov 21 20:44	29° <del>ℓ</del> 25'19	0°21'19	opposition	4333 Jun 19 05:32	29° <del>♊</del> 34'05	0°-2'-14
max. Earth dist.	4326 Nov 21 04:59	29° <del>ℓ</del> 22'51	19.44516 AU	min. Earth dist.	4333 Jun 19 11:32	29° <del>♊</del> 33'27	17.73473 AU
	4326 Dec 01 02:04	0° <del>♋</del>		direct	4333 Sep 04 07:29	27° <del>♊</del> 30'24	
retrograde	4327 Mar 09 03:48	3° <del>♊</del> 45'49			4333 Nov 22 21:30	0° <del>♋</del>	
opposition	4327 May 22 05:24	1° <del>♊</del> 44'09	0°21'53				
min. Earth dist.	4327 May 22 18:39	1° <del>♊</del> 42'44	17.46226 AU	conjunction	4333 Dec 24 01:57	1° <del>♋</del> 52'20	0°-3'-56
	4327 Jul 09 02:00	30° <del>♊</del>		minimum elong	4333 Dec 24 01:56	1° <del>♋</del> 52'19	0°03'56
direct	4327 Aug 07 00:51	29° <del>ℓ</del> 38'44		behind sun begin	4333 Dec 23 19:25	1° <del>♋</del> 51'20	
	4327 Sep 04 13:17	0° <del>♋</del>		behind sun end	4333 Dec 24 08:27	1° <del>♋</del> 53'19	
				max. Earth dist.	4333 Dec 23 20:12	1° <del>♋</del> 51'28	19.76158 AU
conjunction	4327 Nov 26 20:11	4° <del>♊</del> 06'58	0°17'55	retrograde	4334 Apr 10 05:52	6° <del>♋</del> 07'38	
minimum elong	4327 Nov 26 20:11	4° <del>♊</del> 06'58	0°17'55	opposition	4334 Jun 24 04:08	4° <del>♋</del> 07'10	0°-6'-17
max. Earth dist.	4327 Nov 26 06:29	4° <del>♊</del> 04'49	19.48035 AU	min. Earth dist.	4334 Jun 24 07:39	4° <del>♋</del> 06'48	17.78862 AU
retrograde	4328 Mar 13 02:50	8° <del>♊</del> 26'52		direct	4334 Sep 09 09:22	2° <del>♋</del> 03'46	
opposition	4328 May 26 05:59	6° <del>♊</del> 25'25	0°18'02				
min. Earth dist.	4328 May 26 17:25	6° <del>♊</del> 24'11	17.49953 AU	conjunction	4334 Dec 28 19:55	6° <del>♋</del> 24'20	0°-7'-32
direct	4328 Aug 11 04:00	4° <del>♊</del> 20'17		minimum elong	4334 Dec 28 19:55	6° <del>♋</del> 24'20	0°07'32
				behind sun begin	4334 Dec 28 13:55	6° <del>♋</del> 23'26	
conjunction	4328 Nov 30 19:04	8° <del>♊</del> 47'43	0°14'25	behind sun end	4334 Dec 29 01:56	6° <del>♋</del> 25'15	
minimum elong	4328 Nov 30 19:04	8° <del>♊</del> 47'43	0°14'26	max. Earth dist.	4334 Dec 28 16:37	6° <del>♋</del> 23'51	19.81647 AU
behind sun begin	4328 Nov 30 16:03	8° <del>♊</del> 47'15		retrograde	4335 Apr 14 22:24	10° <del>♋</del> 38'46	
behind sun end	4328 Nov 30 22:06	8° <del>♊</del> 48'10		opposition	4335 Jun 29 02:28	8° <del>♋</del> 38'23	0°-10'-16
max. Earth dist.	4328 Nov 30 06:26	8° <del>♊</del> 45'45	19.51971 AU	min. Earth dist.	4335 Jun 29 05:23	8° <del>♋</del> 38'05	17.84457 AU
retrograde	4329 Mar 17 23:35	13° <del>♊</del> 06'57		direct	4335 Sep 14 07:36	6° <del>♋</del> 35'15	
opposition	4329 May 31 06:22	11° <del>♊</del> 05'43	0°14'05				
min. Earth dist.	4329 May 31 17:24	11° <del>♊</del> 04'33	17.54086 AU	conjunction	4336 Jan 02 12:42	10° <del>♋</del> 54'25	0°-11'-4
direct	4329 Aug 16 03:58	9° <del>♊</del> 00'52		minimum elong	4336 Jan 02 12:42	10° <del>♋</del> 54'25	0°11'05
				behind sun begin	4336 Jan 02 07:44	10° <del>♋</del> 53'40	
conjunction	4329 Dec 05 17:19	13° <del>♊</del> 27'24	0°10'50	behind sun end	4336 Jan 02 17:40	10° <del>♋</del> 55'10	
minimum elong	4329 Dec 05 17:19	13° <del>♊</del> 27'24	0°10'51	max. Earth dist.	4336 Jan 02 10:25	10° <del>♋</del> 54'05	19.87356 AU
behind sun begin	4329 Dec 05 12:15	13° <del>♊</del> 26'38		retrograde	4336 Apr 18 16:32	15° <del>♋</del> 07'57	
behind sun end	4329 Dec 05 22:23	13° <del>♊</del> 28'11		opposition	4336 Jul 02 23:59	13° <del>♋</del> 07'40	0°-14'-10
max. Earth dist.	4329 Dec 05 06:09	13° <del>♊</del> 25'40	19.56282 AU	min. Earth dist.	4336 Jul 03 00:13	13° <del>♋</del> 07'38	17.90275 AU
retrograde	4330 Mar 22 22:40	17° <del>♊</del> 45'56		direct	4336 Sep 18 07:12	11° <del>♋</del> 04'48	
opposition	4330 Jun 05 06:36	15° <del>♊</del> 44'54	0°10'02				
min. Earth dist.	4330 Jun 05 15:34	15° <del>♊</del> 43'57	17.58544 AU	conjunction	4337 Jan 06 04:49	15° <del>♋</del> 22'33	0°-14'-30
direct	4330 Aug 21 06:48	13° <del>♊</del> 40'21		minimum elong	4337 Jan 06 04:49	15° <del>♋</del> 22'33	0°14'31
				behind sun begin	4337 Jan 06 01:47	15° <del>♋</del> 22'06	
conjunction	4330 Dec 10 14:43	18° <del>♊</del> 05'52	0°07'13	behind sun end	4337 Jan 06 07:50	15° <del>♋</del> 23'00	
minimum elong	4330 Dec 10 14:43	18° <del>♊</del> 05'52	0°07'13	max. Earth dist.	4337 Jan 06 05:19	15° <del>♋</del> 22'38	19.93281 AU
behind sun begin	4330 Dec 10 08:36	18° <del>♊</del> 04'56		retrograde	4337 Apr 23 07:58	19° <del>♋</del> 35'12	
behind sun end	4330 Dec 10 20:49	18° <del>♊</del> 06'48		opposition	4337 Jul 07 20:57	17° <del>♋</del> 35'01	0°-17'-56
max. Earth dist.	4330 Dec 10 05:02	18° <del>♊</del> 04'22	19.60886 AU	min. Earth dist.	4337 Jul 07 20:18	17° <del>♋</del> 35'05	17.96316 AU
retrograde	4331 Mar 27 18:10	22° <del>♊</del> 23'40		direct	4337 Sep 23 03:55	15° <del>♋</del> 32'29	
opposition	4331 Jun 10 06:43	20° <del>♊</del> 22'48	0°05'57				
min. Earth dist.	4331 Jun 10 15:21	20° <del>♊</del> 21'53	17.63290 AU	conjunction	4338 Jan 10 19:56	19° <del>♋</del> 48'47	0°-17'-51
direct	4331 Aug 26 06:11	18° <del>♊</del> 18'33		minimum elong	4338 Jan 10 19:56	19° <del>♋</del> 48'47	0°17'52
				max. Earth dist.	4338 Jan 10 21:19	19° <del>♋</del> 49'00	19.99440 AU
conjunction	4331 Dec 15 11:20	22° <del>♊</del> 42'57	0°03'33	retrograde	4338 Apr 28 00:45	24° <del>♋</del> 00'34	
minimum elong	4331 Dec 15 11:19	22° <del>♊</del> 42'57	0°03'34	opposition	4338 Jul 12 17:20	22° <del>♋</del> 00'31	0°-21'-35
behind sun begin	4331 Dec 15 04:46	22° <del>♊</del> 41'57		min. Earth dist.	4338 Jul 12 13:58	22° <del>♋</del> 00'52	18.02584 AU
behind sun end	4331 Dec 15 17:53	22° <del>♊</del> 43'57		direct	4338 Sep 28 00:44	19° <del>♋</del> 58'19	
max. Earth dist.	4331 Dec 15 02:47	22° <del>♊</del> 41'38	19.65765 AU				
retrograde	4332 Mar 31 15:56	26° <del>♊</del> 59'57		conjunction	4339 Jan 15 10:13	24° <del>♋</del> 13'13	0°-21'-3
opposition	4332 Jun 14 06:14	24° <del>♊</del> 59'15	0°01'51	minimum elong	4339 Jan 15 10:13	24° <del>♋</del> 13'13	0°21'03
min. Earth dist.	4332 Jun 14 12:33	24° <del>♊</del> 58'35	17.68277 AU	max. Earth dist.	4339 Jan 15 14:34	24° <del>♋</del> 13'52	20.05798 AU
direct	4332 Aug 30 08:37	22° <del>♊</del> 55'17		retrograde	4339 May 02 15:42	28° <del>♋</del> 24'09	
desc. node	4332 Nov 28 04:57	26° <del>♊</del> 00'56		opposition	4339 Jul 17 13:16	26° <del>♋</del> 24'15	0°-25'-4
				min. Earth dist.	4339 Jul 17 08:48	26° <del>♋</del> 24'43	18.09023 AU

direct	4339 Oct 02 19:40	24°☾22'28			4347 Mar 15 18:33	0°☿	
				retrograde	4347 Jun 06 05:44	2°☿35'44	
conjunction	4340 Jan 19 23:39	28°☾35'55 0°-24'-7		opposition	4347 Aug 22 06:18	0°☿36'51	0°-45'-49
minimum elong	4340 Jan 19 23:39	28°☾35'55 0°24'08		min. Earth dist.	4347 Aug 21 15:36	0°☿38'20	18.58741 AU
max. Earth dist.	4340 Jan 20 04:43	28°☾36'41 20.12311 AU			4347 Sep 06 17:59	30°☿	
	4340 Feb 12 10:23	0°☿		direct	4347 Nov 07 03:18	28°☿37'58	
retrograde	4340 May 06 07:43	2°☿46'02			4348 Jan 04 02:13	0°☿	
opposition	4340 Jul 21 08:19	0°☿46'18 0°-28'-23					
min. Earth dist.	4340 Jul 21 01:35	0°☿47'00 18.15590 AU		conjunction	4348 Feb 22 11:12	2°☿40'47	0°-42'-6
	4340 Aug 09 14:56	30°☿☾		minimum elong	4348 Feb 22 11:12	2°☿40'47	0°42'07
direct	4340 Oct 06 14:11	28°☾44'54		max. Earth dist.	4348 Feb 23 02:01	2°☿42'58	20.61341 AU
	4340 Nov 30 15:41	0°☿		retrograde	4348 Jun 09 16:38	6°☿45'20	
				opposition	4348 Aug 25 20:26	4°☿46'27	0°-47'-21
conjunction	4341 Jan 23 12:29	2°☿56'58 0°-27'-2		min. Earth dist.	4348 Aug 25 05:10	4°☿47'59	18.63897 AU
minimum elong	4341 Jan 23 12:29	2°☿56'58 0°27'03		direct	4348 Nov 10 15:10	2°☿47'48	
max. Earth dist.	4341 Jan 23 20:16	2°☿58'08 20.18900 AU					
retrograde	4341 May 10 21:52	7°☿06'17		conjunction	4349 Feb 25 18:57	6°☿49'27	0°-43'-23
opposition	4341 Jul 26 02:59	5°☿06'45 0°-31'-31		minimum elong	4349 Feb 25 18:57	6°☿49'27	0°43'23
min. Earth dist.	4341 Jul 25 19:15	5°☿07'32 18.22185 AU		max. Earth dist.	4349 Feb 26 11:46	6°☿51'56	20.66352 AU
direct	4341 Oct 11 07:34	3°☿05'46		retrograde	4349 Jun 14 03:48	10°☿53'25	
				opposition	4349 Aug 30 09:58	8°☿54'32	0°-48'-38
conjunction	4342 Jan 28 00:22	7°☿16'25 0°-29'-47		min. Earth dist.	4349 Aug 29 17:24	8°☿56'12	18.68777 AU
minimum elong	4342 Jan 28 00:22	7°☿16'25 0°29'47		direct	4349 Nov 15 04:33	6°☿56'07	
max. Earth dist.	4342 Jan 28 08:36	7°☿17'40 20.25489 AU					
retrograde	4342 May 15 13:02	11°☿25'00		conjunction	4350 Mar 02 01:53	10°☿56'39	0°-44'-26
opposition	4342 Jul 30 21:05	9°☿25'36 0°-34'-28		minimum elong	4350 Mar 02 01:53	10°☿56'39	0°44'27
min. Earth dist.	4342 Jul 30 11:30	9°☿26'35 18.28757 AU		max. Earth dist.	4350 Mar 02 18:50	10°☿59'08	20.71110 AU
direct	4342 Oct 16 00:40	7°☿25'01		retrograde	4350 Jun 18 13:38	15°☿00'08	
				opposition	4350 Sep 03 23:00	13°☿01'13	0°-49'-39
conjunction	4343 Feb 01 11:50	11°☿34'19 0°-32'-21		min. Earth dist.	4350 Sep 03 05:51	13°☿02'56	18.73437 AU
minimum elong	4343 Feb 01 11:50	11°☿34'19 0°32'22		direct	4350 Nov 19 14:45	11°☿03'02	
max. Earth dist.	4343 Feb 01 22:34	11°☿35'56 20.32010 AU					
	4343 Apr 09 11:20	15°☿		conjunction	4351 Mar 06 08:38	15°☿02'31	0°-45'-14
retrograde	4343 May 20 02:28	15°☿42'09		minimum elong	4351 Mar 06 08:38	15°☿02'31	0°45'14
	4343 Jul 01 06:38	15°☿☾		max. Earth dist.	4351 Mar 07 03:34	15°☿05'18	20.75654 AU
opposition	4343 Aug 04 14:35	13°☿42'56 0°-37'-12		retrograde	4351 Jun 22 23:44	19°☿05'32	
min. Earth dist.	4343 Aug 04 04:02	13°☿44'00 18.35217 AU		opposition	4351 Sep 08 11:13	17°☿06'39	0°-50'-24
direct	4343 Oct 20 16:39	11°☿42'45		min. Earth dist.	4351 Sep 07 16:37	17°☿08'31	18.77870 AU
	4344 Jan 22 18:46	15°☿		direct	4351 Nov 24 02:53	15°☿08'42	
conjunction	4344 Feb 05 22:25	15°☿50'40 0°-34'-43		conjunction	4352 Mar 09 14:50	19°☿07'14	0°-45'-49
minimum elong	4344 Feb 05 22:25	15°☿50'40 0°34'44		minimum elong	4352 Mar 09 14:50	19°☿07'14	0°45'50
max. Earth dist.	4344 Feb 06 09:17	15°☿52'18 20.38390 AU		max. Earth dist.	4352 Mar 10 09:43	19°☿10'00	20.79972 AU
retrograde	4344 May 23 16:24	19°☿57'48		retrograde	4352 Jun 26 09:20	23°☿09'52	
opposition	4344 Aug 08 07:28	17°☿58'42 0°-39'-42		opposition	4352 Sep 11 23:02	21°☿10'59	0°-50'-54
min. Earth dist.	4344 Aug 07 19:38	17°☿59'54 18.41509 AU		min. Earth dist.	4352 Sep 11 04:10	21°☿12'52	18.82077 AU
direct	4344 Oct 24 08:06	15°☿58'53		direct	4352 Nov 27 11:21	19°☿13'16	
conjunction	4345 Feb 09 08:39	20°☿05'31 0°-36'-53		conjunction	4353 Mar 13 20:50	23°☿10'56	0°-46'-9
minimum elong	4345 Feb 09 08:39	20°☿05'31 0°36'55		minimum elong	4353 Mar 13 20:50	23°☿10'56	0°46'10
max. Earth dist.	4345 Feb 09 21:37	20°☿07'27 20.44556 AU		max. Earth dist.	4353 Mar 14 17:26	23°☿13'57	20.84046 AU
retrograde	4345 May 28 05:04	24°☿11'57		retrograde	4353 Jun 30 18:18	27°☿13'14	
opposition	4345 Aug 12 23:38	22°☿12'58 0°-41'-59		opposition	4353 Sep 16 10:12	25°☿14'23	0°-51'-8
min. Earth dist.	4345 Aug 12 10:53	22°☿14'15 18.47543 AU		min. Earth dist.	4353 Sep 15 13:58	25°☿16'25	18.86010 AU
direct	4345 Oct 28 23:12	20°☿13'30		direct	4353 Dec 01 22:07	23°☿16'55	
conjunction	4346 Feb 13 18:06	24°☿18'49 0°-38'-51		conjunction	4354 Mar 18 02:29	27°☿13'47	0°-46'-16
minimum elong	4346 Feb 13 18:06	24°☿18'49 0°38'51		minimum elong	4354 Mar 18 02:29	27°☿13'47	0°46'18
max. Earth dist.	4346 Feb 14 06:59	24°☿20'44 20.50451 AU		max. Earth dist.	4354 Mar 18 22:52	27°☿16'45	20.87837 AU
retrograde	4346 Jun 01 17:38	28°☿24'36			4354 May 09 13:00	0°☿	
opposition	4346 Aug 17 15:21	26°☿25'41 0°-44'-2		retrograde	4354 Jul 05 03:43	1°☿15'49	
min. Earth dist.	4346 Aug 17 01:41	26°☿27'04 18.53302 AU			4354 Sep 02 12:57	30°☿☾	
direct	4346 Nov 02 12:53	24°☿26'31		opposition	4354 Sep 20 21:07	29°☿16'59	0°-51'-8
				min. Earth dist.	4354 Sep 20 01:00	29°☿19'00	18.89657 AU
conjunction	4347 Feb 18 03:00	28°☿30'35 0°-40'-35		direct	4354 Dec 06 05:29	27°☿19'45	
minimum elong	4347 Feb 18 03:00	28°☿30'35 0°40'36					
max. Earth dist.	4347 Feb 18 17:53	28°☿32'47 20.56051 AU			4355 Feb 28 04:25	0°☿	

conjunction	4355 Mar 22 08:04	1°♊15'54	0°-46'-9	conjunction	4363 Apr 23 03:43	3°♏16'01	0°-37'-25
minimum elong	4355 Mar 22 08:04	1°♊15'54	0°46'11	minimum elong	4363 Apr 23 03:43	3°♏16'01	0°37'26
max. Earth dist.	4355 Mar 23 05:52	1°♊19'04	20.91316 AU	max. Earth dist.	4363 Apr 24 00:26	3°♏19'00	21.02548 AU
retrograde	4355 Jul 09 12:20	5°♊17'42		retrograde	4363 Aug 11 07:26	7°♏17'39	
min. Earth dist.	4355 Sep 24 10:15	3°♊21'02	18.92950 AU	min. Earth dist.	4363 Oct 27 11:04	5°♏20'16	19.02287 AU
opposition	4355 Sep 25 07:27	3°♊18'55	0°-50'-52	opposition	4363 Oct 28 06:25	5°♏18'20	0°-40'-15
direct	4355 Dec 10 14:47	1°♊21'54		direct	4364 Jan 11 20:41	3°♏21'45	
conjunction	4356 Mar 25 13:27	5°♊17'24	0°-45'-49	conjunction	4364 Apr 26 09:24	7°♏14'49	0°-35'-26
minimum elong	4356 Mar 25 13:27	5°♊17'24	0°45'50	minimum elong	4364 Apr 26 09:24	7°♏14'49	0°35'27
max. Earth dist.	4356 Mar 26 10:42	5°♊20'28	20.94414 AU	max. Earth dist.	4364 Apr 27 05:00	7°♏17'37	21.01871 AU
retrograde	4356 Jul 12 20:58	9°♊19'01		retrograde	4364 Aug 14 14:38	11°♏16'39	
opposition	4356 Sep 28 17:24	7°♊20'16	0°-50'-21	opposition	4364 Oct 31 14:01	9°♏17'12	0°-37'-57
min. Earth dist.	4356 Sep 27 20:52	7°♊22'19	18.95850 AU	min. Earth dist.	4364 Oct 30 20:02	9°♏19'01	19.01438 AU
direct	4356 Dec 13 21:16	5°♊23'26		direct	4365 Jan 15 01:21	7°♏20'34	
conjunction	4357 Mar 29 18:58	9°♊18'23	0°-45'-15	conjunction	4365 Apr 30 15:27	11°♏13'44	0°-33'-16
minimum elong	4357 Mar 29 18:58	9°♊18'23	0°45'17	minimum elong	4365 Apr 30 15:27	11°♏13'44	0°33'17
max. Earth dist.	4357 Mar 30 17:12	9°♊21'36	20.97094 AU	max. Earth dist.	4365 May 01 11:28	11°♏16'36	21.00858 AU
retrograde	4357 Jul 17 05:50	13°♊19'53			4365 Jul 24 11:09	15°♏	
min. Earth dist.	4357 Oct 02 05:44	11°♊23'16	18.98292 AU	retrograde	4365 Aug 19 00:01	15°♏15'50	
opposition	4357 Oct 03 03:02	11°♊21'08	0°-49'-36		4365 Sep 13 21:13	15°♏	
direct	4357 Dec 18 05:44	9°♊24'28		opposition	4365 Nov 04 21:28	13°♏16'18	0°-35'-28
conjunction	4358 Apr 03 00:12	13°♊18'55	0°-44'-28	min. Earth dist.	4365 Nov 04 02:51	13°♏18'11	19.00250 AU
minimum elong	4358 Apr 03 00:12	13°♊18'55	0°44'29	direct	4366 Jan 19 07:41	11°♏19'36	
max. Earth dist.	4358 Apr 03 21:36	13°♊22'00	20.99289 AU		4366 May 01 03:12	15°♏	
retrograde	4358 Jul 21 13:56	17°♊20'21		conjunction	4366 May 04 21:35	15°♏12'57	0°-30'-57
opposition	4358 Oct 07 12:32	15°♊21'34	0°-48'-37	minimum elong	4366 May 04 21:35	15°♏12'57	0°30'59
min. Earth dist.	4358 Oct 06 16:17	15°♊23'35	19.00239 AU	max. Earth dist.	4366 May 05 16:26	15°♏15'39	20.99505 AU
direct	4358 Dec 22 11:39	13°♊25'01		retrograde	4366 Aug 23 07:55	19°♏15'24	
conjunction	4359 Apr 07 05:47	17°♊19'03	0°-43'-28	min. Earth dist.	4366 Nov 08 11:55	17°♏17'30	18.98733 AU
minimum elong	4359 Apr 07 05:47	17°♊19'03	0°43'30	opposition	4366 Nov 09 05:02	17°♏15'46	0°-32'-50
max. Earth dist.	4359 Apr 08 03:46	17°♊22'13	21.00970 AU	direct	4367 Jan 23 11:45	15°♏19'02	
retrograde	4359 Jul 25 23:00	21°♊20'25		conjunction	4367 May 09 04:23	19°♏12'40	0°-28'-29
opposition	4359 Oct 11 21:24	19°♊21'35	0°-47'-23	minimum elong	4367 May 09 04:23	19°♏12'40	0°28'30
min. Earth dist.	4359 Oct 11 00:39	19°♊23'40	19.01640 AU	max. Earth dist.	4367 May 09 23:23	19°♏15'23	20.97828 AU
direct	4359 Dec 26 19:42	17°♊25'06		retrograde	4367 Aug 27 18:13	23°♏15'30	
conjunction	4360 Apr 10 11:13	21°♊18'47	0°-42'-16	opposition	4367 Nov 13 12:16	21°♏15'48	0°-30'-1
minimum elong	4360 Apr 10 11:13	21°♊18'47	0°42'16	min. Earth dist.	4367 Nov 12 18:48	21°♏17'34	18.96878 AU
max. Earth dist.	4360 Apr 11 07:59	21°♊21'46	21.02099 AU	direct	4368 Jan 27 18:18	19°♏19'00	
retrograde	4360 Jul 29 06:27	25°♊20'09		conjunction	4368 May 12 11:28	23°♏13'00	0°-25'-52
min. Earth dist.	4360 Oct 14 10:46	23°♊23'10	19.02505 AU	minimum elong	4368 May 12 11:28	23°♏13'00	0°25'54
opposition	4360 Oct 15 06:12	23°♊21'13	0°-45'-55	max. Earth dist.	4368 May 13 05:04	23°♏15'31	20.95801 AU
direct	4360 Dec 30 01:15	21°♊24'45		retrograde	4368 Aug 31 02:39	27°♏16'18	
conjunction	4361 Apr 14 16:38	25°♊18'09	0°-40'-50	opposition	4368 Nov 16 19:51	25°♏16'32	0°-27'-3
minimum elong	4361 Apr 14 16:38	25°♊18'09	0°40'52	min. Earth dist.	4368 Nov 16 04:12	25°♏18'08	18.94674 AU
max. Earth dist.	4361 Apr 15 13:56	25°♊21'12	21.02707 AU	direct	4369 Jan 30 22:00	23°♏19'41	
retrograde	4361 Aug 02 15:21	29°♊19'32		conjunction	4369 May 16 19:02	27°♏14'09	0°-23'-8
opposition	4361 Oct 19 14:32	27°♊20'29	0°-44'-14	minimum elong	4369 May 16 19:02	27°♏14'09	0°23'09
min. Earth dist.	4361 Oct 18 18:31	27°♊22'29	19.02858 AU	max. Earth dist.	4369 May 17 12:33	27°♏16'39	20.93422 AU
direct	4362 Jan 03 08:48	25°♊24'00			4369 Jul 08 16:13	0°♊	
conjunction	4362 Apr 18 22:04	29°♊17'11	0°-39'-13	retrograde	4369 Sep 04 14:10	1°♊17'57	
minimum elong	4362 Apr 18 22:04	29°♊17'11	0°39'15		4369 Nov 03 14:32	30°♏	
max. Earth dist.	4362 Apr 19 18:17	29°♊20'05	21.02833 AU	min. Earth dist.	4369 Nov 20 11:41	29°♏19'44	18.92094 AU
retrograde	4362 May 01 09:48	0°♏		opposition	4369 Nov 21 03:25	29°♏18'08	0°-23'-57
opposition	4362 Aug 06 22:27	3°♏18'41		direct	4370 Feb 04 05:07	27°♏21'11	
min. Earth dist.	4362 Oct 23 22:41	1°♏19'29	0°-42'-21		4370 Apr 28 15:44	0°♊	
direct	4362 Nov 29 04:49	30°♏		conjunction	4370 May 21 03:16	1°♊16'13	0°-20'-16
retrograde	4363 Jan 07 13:58	29°♊22'57		minimum elong	4370 May 21 03:16	1°♊16'13	0°20'17
opposition	4363 Feb 14 20:50	0°♏		max. Earth dist.	4370 May 21 19:04	1°♊18'28	20.90642 AU
direct				retrograde	4370 Sep 08 23:24	5°♊20'33	
				opposition	4370 Nov 25 11:11	3°♊20'40	0°-20'-43

min. Earth dist.	4370 Nov 24 21:41	3°II22'03	18.89107 AU	max. Earth dist.	4377 Jun 19 12:43	29°II59'47	20.59425 AU
direct	4371 Feb 08 09:23	1°II23'36		retrograde	4377 Oct 08 10:08	4°III07'46	
conjunction	4371 May 25 12:16	5°II19'16	0°-17'-17	opposition	4377 Dec 23 23:16	2°III06'42	0°04'18
minimum elong	4371 May 25 12:16	5°II19'16	0°17'19	min. Earth dist.	4377 Dec 23 18:08	2°III07'14	18.56610 AU
max. Earth dist.	4371 May 26 03:21	5°II21'25	20.87439 AU	direct	4378 Mar 08 16:21	0°III07'41	
retrograde	4371 Sep 13 11:28	9°II24'11		conjunction	4378 Jun 23 20:18	4°III09'32	0°05'36
opposition	4371 Nov 29 19:03	7°II24'12	0°-17'-22	minimum elong	4378 Jun 23 20:19	4°III09'32	0°05'35
min. Earth dist.	4371 Nov 29 05:52	7°II25'33	18.85665 AU	behind sun begin	4378 Jun 23 13:51	4°III08'37	
direct	4372 Feb 12 17:09	5°II26'58		behind sun end	4378 Jun 24 02:46	4°III10'27	
conjunction	4372 May 28 21:45	9°II23'20	0°-14'-13	max. Earth dist.	4378 Jun 24 00:37	4°III10'08	20.53786 AU
minimum elong	4372 May 28 21:45	9°II23'20	0°14'14	retrograde	4378 Oct 12 22:21	8°III19'06	
behind sun begin	4372 May 28 18:38	9°II22'54		opposition	4378 Dec 28 09:00	6°III17'52	0°08'00
behind sun end	4372 May 29 00:52	9°II23'46		min. Earth dist.	4378 Dec 28 06:01	6°III18'11	18.50908 AU
max. Earth dist.	4372 May 29 10:43	9°II25'11	20.83756 AU	direct	4379 Mar 13 00:53	4°III18'31	
retrograde	4372 Sep 16 21:44	13°II28'51		conjunction	4379 Jun 28 10:38	8°III21'33	0°08'55
opposition	4372 Dec 03 03:16	11°II28'44	0°-13'-55	minimum elong	4379 Jun 28 10:38	8°III21'33	0°08'55
min. Earth dist.	4372 Dec 02 16:29	11°II29'50	18.81747 AU	behind sun begin	4379 Jun 28 04:53	8°III20'44	
direct	4373 Feb 15 22:46	9°III31'17		behind sun end	4379 Jun 28 16:22	8°III22'22	
conjunction	4373 Jun 02 07:58	13°II28'24	0°-11'-3	max. Earth dist.	4379 Jun 28 13:35	8°III21'57	20.48036 AU
minimum elong	4373 Jun 02 07:58	13°II28'24	0°11'05	retrograde	4379 Oct 17 13:16	12°III31'54	
behind sun begin	4373 Jun 02 03:01	13°II27'42		opposition	4380 Jan 01 19:08	10°III30'31	0°11'41
behind sun end	4373 Jun 02 12:56	13°II29'06		min. Earth dist.	4380 Jan 01 16:28	10°III30'48	18.45108 AU
max. Earth dist.	4373 Jun 02 19:53	13°III30'06	20.79622 AU	direct	4380 Mar 16 11:39	8°III30'50	
retrograde	4373 Sep 21 09:50	17°III34'31		conjunction	4380 Jul 02 01:35	12°III35'06	0°12'13
opposition	4373 Dec 07 11:33	15°III34'15	0°-10'-23	minimum elong	4380 Jul 02 01:35	12°III35'06	0°12'11
min. Earth dist.	4373 Dec 07 01:09	15°III35'19	18.77383 AU	behind sun begin	4380 Jul 01 21:08	12°III34'28	
direct	4374 Feb 20 07:05	13°III36'32		behind sun end	4380 Jul 02 06:01	12°III35'44	
conjunction	4374 Jun 06 18:40	17°III34'27	0°-7'-50	max. Earth dist.	4380 Jul 02 03:10	12°III35'20	20.42188 AU
minimum elong	4374 Jun 06 18:40	17°III34'27	0°07'51	retrograde	4380 Oct 21 02:34	16°III46'17	
behind sun begin	4374 Jun 06 12:40	17°III33'37		opposition	4381 Jan 05 05:54	14°III44'48	0°15'20
behind sun end	4374 Jun 07 00:40	17°III35'18		min. Earth dist.	4381 Jan 05 05:15	14°III44'52	18.39234 AU
max. Earth dist.	4374 Jun 07 04:32	17°III35'52	20.75050 AU	direct	4381 Mar 20 20:49	12°III44'48	
retrograde	4374 Sep 25 20:49	21°III41'13		conjunction	4381 Jul 06 17:30	16°III50'22	0°15'28
opposition	4374 Dec 11 20:12	19°III40'44	0°-6'-46	minimum elong	4381 Jul 06 17:30	16°III50'22	0°15'27
min. Earth dist.	4374 Dec 11 12:13	19°III41'34	18.72617 AU	behind sun begin	4381 Jul 06 16:02	16°III50'10	
direct	4375 Feb 24 13:58	17°III42'44		behind sun end	4381 Jul 06 18:57	16°III50'35	
conjunction	4375 Jun 11 06:11	21°III41'31	0°-4'-33	max. Earth dist.	4381 Jul 06 17:32	16°III50'23	20.36303 AU
minimum elong	4375 Jun 11 06:10	21°III41'31	0°04'35	retrograde	4381 Oct 25 19:05	21°III02'25	
behind sun begin	4375 Jun 10 23:37	21°III40'36		opposition	4382 Jan 09 17:01	19°III00'50	0°18'55
behind sun end	4375 Jun 11 12:43	21°III42'27		min. Earth dist.	4382 Jan 09 16:53	19°III00'50	18.33324 AU
max. Earth dist.	4375 Jun 11 14:55	21°III42'46	20.70119 AU	direct	4382 Mar 25 09:05	17°III00'33	
retrograde	4375 Sep 30 09:16	25°III48'55		conjunction	4382 Jul 11 10:23	21°III07'30	0°18'39
opposition	4375 Dec 16 04:47	23°III48'15	0°-3'-6	minimum elong	4382 Jul 11 10:23	21°III07'30	0°18'39
min. Earth dist.	4375 Dec 15 21:11	23°III49'02	18.67521 AU	max. Earth dist.	4382 Jul 11 09:05	21°III07'18	20.30362 AU
direct	4376 Feb 28 22:49	21°III49'54		retrograde	4382 Oct 30 09:38	25°III20'24	
conjunction	4376 Jun 14 18:11	25°III49'39	0°-1'-12	opposition	4383 Jan 14 04:52	23°III18'46	0°22'26
minimum elong	4376 Jun 14 18:11	25°III49'39	0°01'13	min. Earth dist.	4383 Jan 14 06:55	23°III18'33	18.27357 AU
behind sun begin	4376 Jun 14 11:29	25°III48'43		direct	4383 Mar 29 19:33	21°III18'12	
behind sun end	4376 Jun 15 00:53	25°III50'36		conjunction	4383 Jul 16 04:10	25°III26'33	0°21'46
max. Earth dist.	4376 Jun 15 01:08	25°III50'38	20.64880 AU	minimum elong	4383 Jul 16 04:09	25°III26'33	0°21'46
retrograde	4376 Oct 03 20:38	29°III57'45		max. Earth dist.	4383 Jul 16 00:48	25°III26'04	20.24370 AU
asc. node	4376 Oct 22 16:54	29°III48'57		retrograde	4383 Nov 04 03:24	29°III40'21	
opposition	4376 Dec 19 13:56	27°III56'52	0°00'35	opposition	4384 Jan 18 17:09	27°III38'39	0°25'51
min. Earth dist.	4376 Dec 19 08:32	27°III57'26	18.62162 AU	min. Earth dist.	4384 Jan 18 20:06	27°III38'20	18.21328 AU
direct	4377 Mar 04 06:43	25°III58'12		direct	4384 Apr 02 09:24	25°III37'47	
conjunction	4377 Jun 19 06:49	29°III58'57	0°02'14	conjunction	4384 Jul 19 22:57	29°III47'36	0°24'47
minimum elong	4377 Jun 19 06:49	29°III58'57	0°02'14	minimum elong	4384 Jul 19 22:57	29°III47'36	0°24'48
behind sun begin	4377 Jun 19 00:06	29°III58'00		max. Earth dist.	4384 Jul 19 18:16	29°III46'55	20.18286 AU
behind sun end	4377 Jun 19 13:31	29°III59'54			4384 Jul 23 10:33	0°III	
	4377 Jun 19 13:54	0°III		retrograde	4384 Nov 07 19:28	4°III02'17	

opposition	4385 Jan 22 06:19	2°00'30	0°29'08	conjunction	4392 Aug 26 09:07	5°03'39'01	0°42'53
min. Earth dist.	4385 Jan 22 11:27	1°05'59'58	18.15204 AU	minimum elong	4392 Aug 26 09:07	5°03'39'01	0°42'52
	4385 Apr 01 20:47	30°05'00		max. Earth dist.	4392 Aug 25 16:01	5°03'36'25	19.69782 AU
direct	4385 Apr 06 21:53	29°05'59'20		retrograde	4392 Dec 14 08:51	9°03'59'31	
	4385 Apr 11 22:15	0°00		opposition	4393 Feb 26 13:03	7°03'56'47	0°48'26
				min. Earth dist.	4393 Feb 27 03:53	7°03'55'10	17.67194 AU
conjunction	4385 Jul 24 18:27	4°00'10'35	0°27'41	direct	4393 May 12 13:38	5°03'52'33	
minimum elong	4385 Jul 24 18:27	4°00'10'35	0°27'40				
max. Earth dist.	4385 Jul 24 11:14	4°00'09'31	20.12121 AU	conjunction	4393 Aug 31 10:11	10°03'14'52	0°44'06
retrograde	4385 Nov 12 14:06	8°00'26'08		minimum elong	4393 Aug 31 10:11	10°03'14'52	0°44'06
opposition	4386 Jan 26 20:02	6°00'24'16	0°32'17	max. Earth dist.	4393 Aug 30 15:01	10°03'11'57	19.64666 AU
min. Earth dist.	4386 Jan 27 02:16	6°00'23'36	18.08994 AU	retrograde	4393 Dec 19 06:04	14°03'35'57	
direct	4386 Apr 11 13:08	4°00'22'43		opposition	4394 Mar 03 07:48	12°03'33'09	0°49'39
				min. Earth dist.	4394 Mar 03 23:47	12°03'31'25	17.62288 AU
conjunction	4386 Jul 29 15:07	8°00'35'26	0°30'26	direct	4394 May 17 10:25	10°03'28'37	
minimum elong	4386 Jul 29 15:07	8°00'35'26	0°30'27				
max. Earth dist.	4386 Jul 29 06:39	8°00'34'11	20.05858 AU	conjunction	4394 Sep 05 12:03	14°03'52'12	0°45'03
retrograde	4386 Nov 17 07:51	12°00'51'46		minimum elong	4394 Sep 05 12:03	14°03'52'12	0°45'03
opposition	4387 Jan 31 10:21	10°00'49'48	0°35'16	max. Earth dist.	4394 Sep 04 17:07	14°03'49'18	19.59965 AU
min. Earth dist.	4387 Jan 31 18:37	10°00'48'55	18.02701 AU	retrograde	4394 Dec 24 04:05	19°03'13'47	
direct	4387 Apr 16 03:36	8°00'47'54		opposition	4395 Mar 08 03:04	17°03'10'59	0°50'34
				min. Earth dist.	4395 Mar 08 19:06	17°03'09'14	17.57800 AU
conjunction	4387 Aug 03 12:23	13°00'02'03	0°33'02	direct	4395 May 22 08:00	15°03'06'13	
minimum elong	4387 Aug 03 12:23	13°00'02'03	0°33'02				
max. Earth dist.	4387 Aug 03 01:10	13°00'00'22	19.99558 AU	conjunction	4395 Sep 10 14:15	19°03'30'58	0°45'42
	4387 Sep 06 11:46	15°00		minimum elong	4395 Sep 10 14:15	19°03'30'58	0°45'42
retrograde	4387 Nov 22 03:22	17°00'19'11		max. Earth dist.	4395 Sep 09 17:42	19°03'27'49	19.55697 AU
opposition	4388 Feb 05 01:18	15°00'17'04	0°38'04	retrograde	4395 Dec 29 01:50	23°03'53'04	
min. Earth dist.	4388 Feb 05 10:44	15°00'16'04	17.96407 AU	opposition	4396 Mar 11 23:11	21°03'50'17	0°51'09
	4388 Feb 11 16:44	15°00		min. Earth dist.	4396 Mar 12 16:30	21°03'48'24	17.53761 AU
direct	4388 Apr 19 20:03	13°00'14'45		direct	4396 May 26 05:47	19°03'45'19	
	4388 Jun 24 01:24	15°00					
conjunction	4388 Aug 07 10:20	17°00'30'20	0°35'27	conjunction	4396 Sep 14 16:52	24°03'11'11	0°46'04
minimum elong	4388 Aug 07 10:20	17°00'30'20	0°35'26	minimum elong	4396 Sep 14 16:52	24°03'11'11	0°46'04
max. Earth dist.	4388 Aug 06 22:26	17°00'28'33	19.93272 AU	max. Earth dist.	4396 Sep 13 20:32	24°03'08'03	19.51870 AU
retrograde	4388 Nov 25 22:33	21°00'48'12		retrograde	4397 Jan 02 01:21	28°03'33'42	
opposition	4389 Feb 08 16:53	19°00'45'58	0°40'39	opposition	4397 Mar 16 19:50	26°03'30'59	0°51'24
min. Earth dist.	4389 Feb 09 03:50	19°00'44'47	17.90160 AU	min. Earth dist.	4397 Mar 17 12:59	26°03'29'06	17.50134 AU
direct	4389 Apr 24 12:01	17°00'43'15		direct	4397 May 31 05:22	24°03'25'51	
conjunction	4389 Aug 12 09:01	22°00'00'14	0°37'39	conjunction	4397 Sep 19 20:03	28°03'52'44	0°46'07
minimum elong	4389 Aug 12 09:01	22°00'00'14	0°37'39	minimum elong	4397 Sep 19 20:03	28°03'52'44	0°46'07
max. Earth dist.	4389 Aug 11 18:29	21°00'58'02	19.87087 AU	max. Earth dist.	4397 Sep 18 22:26	28°03'49'24	19.48437 AU
retrograde	4389 Nov 30 18:52	26°00'18'50			4397 Oct 08 02:33	0°00	
opposition	4390 Feb 13 08:55	24°00'16'26	0°43'00	retrograde	4398 Jan 06 23:40	3°00'15'37	
min. Earth dist.	4390 Feb 13 21:06	24°00'15'07	17.84056 AU	opposition	4398 Mar 21 17:08	1°00'12'57	0°51'18
direct	4390 Apr 29 05:42	22°00'13'17		min. Earth dist.	4398 Mar 22 11:53	1°00'10'54	17.46906 AU
					4398 Apr 20 10:37	30°00	
conjunction	4390 Aug 17 08:34	26°00'31'40	0°39'38	direct	4398 Jun 05 04:17	29°00'07'39	
minimum elong	4390 Aug 17 08:34	26°00'31'40	0°39'38		4398 Jul 20 01:54	0°00	
max. Earth dist.	4390 Aug 16 17:43	26°00'29'26	19.81061 AU	conjunction	4398 Sep 24 23:36	3°00'35'28	0°45'53
	4390 Oct 22 09:00	0°00		minimum elong	4398 Sep 24 23:36	3°00'35'28	0°45'52
retrograde	4390 Dec 05 15:11	0°00'50'56		max. Earth dist.	4398 Sep 24 01:41	3°00'32'04	19.45396 AU
	4391 Jan 19 14:45	30°00		retrograde	4399 Jan 12 00:16	7°00'58'38	
opposition	4391 Feb 18 01:41	28°00'48'25	0°45'05	opposition	4399 Mar 26 15:04	5°00'56'01	0°50'52
min. Earth dist.	4391 Feb 18 14:56	28°00'46'59	17.78138 AU	min. Earth dist.	4399 Mar 27 09:24	5°00'54'00	17.44047 AU
direct	4391 May 03 23:04	26°00'44'53		direct	4399 Jun 10 05:47	3°00'50'34	
	4391 Aug 04 11:11	0°00		max. Earth dist.	4399 Sep 29 04:42	8°00'15'41	19.42717 AU
conjunction	4391 Aug 22 08:27	1°00'04'37	0°41'23	conjunction	4399 Sep 30 03:12	8°00'19'11	0°45'19
minimum elong	4391 Aug 22 08:26	1°00'04'37	0°41'24	minimum elong	4399 Sep 30 03:12	8°00'19'11	0°45'20
max. Earth dist.	4391 Aug 21 15:12	1°00'02'00	19.75268 AU	retrograde	4400 Jan 16 22:48	12°00'42'32	
retrograde	4391 Dec 10 11:57	5°00'24'31		opposition	4400 Mar 30 13:40	10°00'39'58	0°50'05
opposition	4392 Feb 22 19:04	3°00'21'52	0°46'54	min. Earth dist.	4400 Mar 31 09:23	10°00'37'48	17.41569 AU
min. Earth dist.	4392 Feb 23 09:27	3°00'20'18	17.72500 AU	direct	4400 Jun 14 05:44	8°00'34'22	
direct	4392 May 07 18:27	1°00'17'58		max. Earth dist.	4400 Oct 03 07:56	13°00'00'03	19.40439 AU

conjunction	4400 Oct 04 06:58	13° <del>2</del> 03'39	0°44'27	direct	4408 Jul 23 02:08	16° <del>1</del> 33'16	
minimum elong	4400 Oct 04 06:58	13° <del>2</del> 03'39	0°44'27	max. Earth dist.	4408 Nov 11 10:30	21° <del>1</del> 00'17	19.39981 AU
retrograde	4401 Jan 20 23:51	17° <del>2</del> 27'06					
opposition	4401 Apr 04 12:26	15° <del>2</del> 24'34	0°48'57	conjunction	4408 Nov 12 04:52	21° <del>1</del> 03'10	0°27'24
min. Earth dist.	4401 Apr 05 07:29	15° <del>2</del> 22'29	17.39488 AU	minimum elong	4408 Nov 12 04:52	21° <del>1</del> 03'10	0°27'25
direct	4401 Jun 19 08:18	13° <del>2</del> 18'50		retrograde	4409 Feb 27 16:54	25° <del>1</del> 24'41	
max. Earth dist.	4401 Oct 08 11:59	17° <del>2</del> 45'07	19.38560 AU	opposition	4409 May 12 13:22	23° <del>1</del> 22'44	0°28'51
				min. Earth dist.	4409 May 13 04:32	23° <del>1</del> 21'06	17.41209 AU
conjunction	4401 Oct 09 10:50	17° <del>2</del> 48'41	0°43'16	direct	4409 Jul 28 04:55	21° <del>1</del> 16'59	
minimum elong	4401 Oct 09 10:50	17° <del>2</del> 48'41	0°43'17				
retrograde	4402 Jan 25 22:48	22° <del>2</del> 12'09		conjunction	4409 Nov 17 05:46	25° <del>1</del> 46'26	0°24'16
opposition	4402 Apr 09 11:52	20° <del>2</del> 09'39	0°47'28	minimum elong	4409 Nov 17 05:46	25° <del>1</del> 46'26	0°24'17
min. Earth dist.	4402 Apr 10 08:04	20° <del>2</del> 07'27	17.37827 AU	max. Earth dist.	4409 Nov 16 13:40	25° <del>1</del> 43'55	19.42535 AU
direct	4402 Jun 24 09:08	18° <del>2</del> 03'47			4410 Feb 16 09:31	0° <del>2</del>	
				retrograde	4410 Mar 04 15:34	0° <del>2</del> 07'25	
conjunction	4402 Oct 14 14:25	22° <del>2</del> 34'02	0°41'48		4410 Mar 21 02:31	30° <del>1</del> 00	
minimum elong	4402 Oct 14 14:25	22° <del>2</del> 34'02	0°41'48	opposition	4410 May 17 14:02	28° <del>1</del> 05'40	0°25'15
max. Earth dist.	4402 Oct 13 15:00	22° <del>2</del> 30'23	19.37131 AU	min. Earth dist.	4410 May 18 04:04	28° <del>1</del> 04'09	17.44009 AU
retrograde	4403 Jan 30 23:39	26° <del>2</del> 57'27		direct	4410 Aug 02 08:19	26° <del>1</del> 00'09	
opposition	4403 Apr 14 11:25	24° <del>2</del> 54'59	0°45'40		4410 Nov 14 12:49	0° <del>2</del>	
min. Earth dist.	4403 Apr 15 06:38	24° <del>2</del> 52'53	17.36628 AU				
direct	4403 Jun 29 11:58	22° <del>2</del> 49'01		conjunction	4410 Nov 22 05:50	0° <del>2</del> 28'59	0°20'59
				minimum elong	4410 Nov 22 05:50	0° <del>2</del> 28'59	0°20'59
conjunction	4403 Oct 19 17:54	27° <del>2</del> 19'33	0°40'02	max. Earth dist.	4410 Nov 21 14:11	0° <del>2</del> 26'32	19.45584 AU
minimum elong	4403 Oct 19 17:54	27° <del>2</del> 19'33	0°40'02	retrograde	4411 Mar 09 13:23	4° <del>2</del> 49'25	
max. Earth dist.	4403 Oct 18 19:38	27° <del>2</del> 16'03	19.36175 AU	opposition	4411 May 22 14:42	2° <del>2</del> 47'51	0°21'30
	4403 Dec 04 08:24	0° <del>1</del> 00		min. Earth dist.	4411 May 23 03:54	2° <del>2</del> 46'26	17.47292 AU
retrograde	4404 Feb 04 22:43	1° <del>1</del> 42'48		direct	4411 Aug 07 10:13	0° <del>2</del> 42'33	
	4404 Apr 10 22:20	30° <del>1</del> 00					
opposition	4404 Apr 18 11:27	29° <del>2</del> 40'22	0°43'33	conjunction	4411 Nov 27 05:27	5° <del>2</del> 10'41	0°17'33
min. Earth dist.	4404 Apr 19 07:14	29° <del>2</del> 38'13	17.35931 AU	minimum elong	4411 Nov 27 05:27	5° <del>2</del> 10'41	0°17'34
direct	4404 Jul 03 13:27	27° <del>2</del> 34'19		max. Earth dist.	4411 Nov 26 15:49	5° <del>2</del> 08'33	19.49083 AU
	4404 Sep 19 09:24	0° <del>1</del> 00		retrograde	4412 Mar 13 11:53	9° <del>2</del> 30'28	
				opposition	4412 May 26 15:09	7° <del>2</del> 29'06	0°17'37
conjunction	4404 Oct 23 20:49	2° <del>1</del> 04'58	0°37'59	min. Earth dist.	4412 May 27 02:50	7° <del>2</del> 27'51	17.50977 AU
minimum elong	4404 Oct 23 20:49	2° <del>1</del> 04'58	0°38'00	direct	4412 Aug 11 12:38	5° <del>2</del> 24'03	
max. Earth dist.	4404 Oct 22 22:11	2° <del>1</del> 01'25	19.35754 AU				
retrograde	4405 Feb 08 22:53	6° <del>1</del> 28'01		conjunction	4412 Dec 01 04:18	9° <del>2</del> 51'21	0°14'02
opposition	4405 Apr 23 11:31	4° <del>1</del> 25'36	0°41'07	minimum elong	4412 Dec 01 04:18	9° <del>2</del> 51'21	0°14'02
min. Earth dist.	4405 Apr 24 06:05	4° <del>1</del> 23'35	17.35783 AU	behind sun begin	4412 Dec 01 00:57	9° <del>2</del> 50'50	
direct	4405 Jul 08 16:28	2° <del>1</del> 19'30		behind sun end	4412 Dec 01 07:39	9° <del>2</del> 51'52	
				max. Earth dist.	4412 Nov 30 15:21	9° <del>2</del> 49'20	19.52953 AU
conjunction	4405 Oct 28 23:39	6° <del>1</del> 50'09	0°35'41	retrograde	4413 Mar 18 09:14	14° <del>2</del> 10'27	
minimum elong	4405 Oct 28 23:39	6° <del>1</del> 50'10	0°35'40	opposition	4413 May 31 15:34	12° <del>2</del> 09'15	0°13'38
max. Earth dist.	4405 Oct 28 02:52	6° <del>1</del> 46'54	19.35887 AU	min. Earth dist.	4413 Jun 01 02:44	12° <del>2</del> 08'04	17.55021 AU
retrograde	4406 Feb 13 21:29	11° <del>1</del> 12'54		direct	4413 Aug 16 13:46	10° <del>2</del> 04'27	
opposition	4406 Apr 28 11:50	9° <del>1</del> 10'33	0°38'25				
min. Earth dist.	4406 Apr 29 06:19	9° <del>1</del> 08'32	17.36209 AU	conjunction	4413 Dec 06 02:29	14° <del>2</del> 30'48	0°10'25
direct	4406 Jul 13 19:16	7° <del>1</del> 04'27		minimum elong	4413 Dec 06 02:29	14° <del>2</del> 30'48	0°10'26
max. Earth dist.	4406 Nov 02 04:58	11° <del>1</del> 31'41	19.36629 AU	behind sun begin	4413 Dec 05 21:15	14° <del>2</del> 30'01	
				behind sun end	4413 Dec 06 07:42	14° <del>2</del> 31'36	
conjunction	4406 Nov 03 01:52	11° <del>1</del> 34'58	0°33'08	max. Earth dist.	4413 Dec 05 15:08	14° <del>2</del> 29'03	19.57155 AU
minimum elong	4406 Nov 03 01:52	11° <del>1</del> 34'58	0°33'08	retrograde	4414 Mar 23 06:58	18° <del>2</del> 49'10	
	4407 Jan 03 23:44	15° <del>1</del> 00		opposition	4414 Jun 05 15:39	16° <del>2</del> 48'09	0°09'34
retrograde	4407 Feb 18 20:21	15° <del>1</del> 57'22		min. Earth dist.	4414 Jun 06 00:55	16° <del>2</del> 47'10	17.59355 AU
	4407 Apr 07 05:08	15° <del>1</del> 00		direct	4414 Aug 21 15:56	14° <del>2</del> 43'35	
opposition	4407 May 03 12:19	13° <del>1</del> 55'05	0°35'27				
min. Earth dist.	4407 May 04 05:22	13° <del>1</del> 53'15	17.37265 AU	conjunction	4414 Dec 10 23:52	19° <del>2</del> 08'54	0°06'46
direct	4407 Jul 18 22:26	11° <del>1</del> 49'03		minimum elong	4414 Dec 10 23:52	19° <del>2</del> 08'54	0°06'47
	4407 Oct 17 19:19	15° <del>1</del> 00		behind sun begin	4414 Dec 10 17:41	19° <del>2</del> 07'58	
max. Earth dist.	4407 Nov 07 09:06	16° <del>1</del> 16'25	19.37998 AU	behind sun end	4414 Dec 11 06:03	19° <del>2</del> 09'51	
				max. Earth dist.	4414 Dec 10 13:43	19° <del>2</del> 07'20	19.61630 AU
conjunction	4407 Nov 08 03:37	16° <del>1</del> 19'19	0°30'22	retrograde	4415 Mar 28 02:59	23° <del>2</del> 26'30	
minimum elong	4407 Nov 08 03:37	16° <del>1</del> 19'19	0°30'22	opposition	4415 Jun 10 15:37	21° <del>2</del> 25'36	0°05'28
retrograde	4408 Feb 23 18:57	20° <del>1</del> 41'18		min. Earth dist.	4415 Jun 11 00:27	21° <del>2</del> 24'40	17.63968 AU
opposition	4408 May 07 12:56	18° <del>1</del> 39'10	0°32'15	direct	4415 Aug 26 16:11	19° <del>2</del> 21'18	
min. Earth dist.	4408 May 08 05:12	18° <del>1</del> 37'25	17.38934 AU				

conjunction	4415 Dec 15 20:16	23° $\overline{A}$ 45'29	0°03'05	retrograde	4422 Apr 28 09:31	24° $\overline{B}$ 59'34	
minimum elong	4415 Dec 15 20:16	23° $\overline{A}$ 45'29	0°03'05	opposition	4422 Jul 13 00:54	22° $\overline{B}$ 59'33	0°-22'-4
behind sun begin	4415 Dec 15 13:41	23° $\overline{A}$ 44'29		min. Earth dist.	4422 Jul 12 21:27	22° $\overline{B}$ 59'54	18.03106 AU
behind sun end	4415 Dec 16 02:52	23° $\overline{A}$ 46'29		direct	4422 Sep 28 08:27	20° $\overline{B}$ 57'23	
max. Earth dist.	4415 Dec 15 11:29	23° $\overline{A}$ 44'08	19.66372 AU				
retrograde	4416 Mar 31 23:47	28° $\overline{A}$ 02'15		conjunction	4423 Jan 15 18:15	25° $\overline{B}$ 12'14	0°-21'-30
opposition	4416 Jun 14 14:59	26° $\overline{A}$ 01'29	0°01'20	minimum elong	4423 Jan 15 18:15	25° $\overline{B}$ 12'14	0°21'30
min. Earth dist.	4416 Jun 14 21:35	26° $\overline{A}$ 00'48	17.68815 AU	max. Earth dist.	4423 Jan 15 22:28	25° $\overline{B}$ 12'52	20.06345 AU
direct	4416 Aug 30 17:56	23° $\overline{A}$ 57'26		retrograde	4423 May 02 23:36	29° $\overline{B}$ 23'06	
desc. node	4416 Oct 13 02:40	24° $\overline{A}$ 45'21		opposition	4423 Jul 17 20:43	27° $\overline{B}$ 23'15	0°-25'-33
				min. Earth dist.	4423 Jul 17 16:27	27° $\overline{B}$ 23'42	18.09585 AU
conjunction	4416 Dec 19 15:58	28° $\overline{A}$ 20'24	0°00'-41	direct	4423 Oct 03 03:14	25° $\overline{B}$ 21'31	
minimum elong	4416 Dec 19 15:58	28° $\overline{A}$ 20'24	0°00'41				
behind sun begin	4416 Dec 19 09:22	28° $\overline{A}$ 19'25		conjunction	4424 Jan 20 07:36	29° $\overline{B}$ 34'58	0°-24'-33
behind sun end	4416 Dec 19 22:34	28° $\overline{A}$ 21'24		minimum elong	4424 Jan 20 07:35	29° $\overline{B}$ 34'58	0°24'33
max. Earth dist.	4416 Dec 19 08:51	28° $\overline{A}$ 19'20	19.71336 AU	max. Earth dist.	4424 Jan 20 12:32	29° $\overline{B}$ 35'43	20.12877 AU
	4417 Jan 16 01:05	0° $\overline{B}$			4424 Jan 27 04:14	0° $\approx$	
retrograde	4417 Apr 05 17:48	2° $\overline{B}$ 36'20		retrograde	4424 May 06 16:07	3° $\approx$ 45'03	
opposition	4417 Jun 19 13:56	0° $\overline{B}$ 35'40	0°-2'-45	opposition	4424 Jul 21 15:49	1° $\approx$ 45'25	0°-28'-52
min. Earth dist.	4417 Jun 19 20:11	0° $\overline{B}$ 35'01	17.73898 AU	min. Earth dist.	4424 Jul 21 09:13	1° $\approx$ 46'05	18.16144 AU
	4417 Jul 03 22:06	30° $\overline{R}$ $\overline{A}$			4424 Sep 11 11:53	30° $\overline{R}$ $\overline{B}$	
direct	4417 Sep 04 17:15	28° $\overline{A}$ 31'52		direct	4424 Oct 06 21:51	29° $\overline{B}$ 44'05	
	4417 Nov 03 09:56	0° $\overline{B}$			4424 Oct 31 19:11	0° $\approx$	
conjunction	4417 Dec 24 10:38	2° $\overline{B}$ 53'34	0°-4'-24	conjunction	4425 Jan 23 20:25	3° $\approx$ 56'10	0°-27'-27
minimum elong	4417 Dec 24 10:38	2° $\overline{B}$ 53'34	0°04'25	minimum elong	4425 Jan 23 20:25	3° $\approx$ 56'10	0°27'28
behind sun begin	4417 Dec 24 04:09	2° $\overline{B}$ 52'35		max. Earth dist.	4425 Jan 24 03:58	3° $\approx$ 57'18	20.19434 AU
behind sun end	4417 Dec 24 17:07	2° $\overline{B}$ 54'32		retrograde	4425 May 11 05:34	8° $\approx$ 05'29	
max. Earth dist.	4417 Dec 24 04:45	2° $\overline{B}$ 52'41	19.76546 AU	opposition	4425 Jul 26 10:26	6° $\approx$ 06'01	0°-31'-59
retrograde	4418 Apr 10 13:34	7° $\overline{B}$ 08'37		min. Earth dist.	4425 Jul 26 03:09	6° $\approx$ 06'46	18.22692 AU
opposition	4418 Jun 24 12:24	5° $\overline{B}$ 08'03	0°-6'-48	direct	4425 Oct 11 15:26	4° $\approx$ 05'07	
min. Earth dist.	4418 Jun 24 16:03	5° $\overline{B}$ 07'40	17.79221 AU				
direct	4418 Sep 09 17:49	3° $\overline{B}$ 04'30		conjunction	4426 Jan 28 08:26	8° $\approx$ 15'49	0°-30'-11
				minimum elong	4426 Jan 28 08:26	8° $\approx$ 15'49	0°30'12
conjunction	4418 Dec 29 04:17	7° $\overline{B}$ 24'52	0°-8'00	max. Earth dist.	4426 Jan 28 16:22	8° $\approx$ 17'00	20.25959 AU
minimum elong	4418 Dec 29 04:16	7° $\overline{B}$ 24'51	0°08'00	retrograde	4426 May 15 20:52	12° $\approx$ 24'23	
behind sun begin	4418 Dec 28 22:22	7° $\overline{B}$ 23'58		opposition	4426 Jul 31 04:31	10° $\approx$ 25'05	0°-34'-55
behind sun end	4418 Dec 29 10:11	7° $\overline{B}$ 25'45		min. Earth dist.	4426 Jul 30 19:16	10° $\approx$ 26'02	18.29181 AU
max. Earth dist.	4418 Dec 29 00:48	7° $\overline{B}$ 24'21	19.81993 AU	direct	4426 Oct 16 07:44	8° $\approx$ 24'34	
retrograde	4419 Apr 15 06:09	11° $\overline{B}$ 39'03					
opposition	4419 Jun 29 10:31	9° $\overline{B}$ 38'35	0°-10'-47	conjunction	4427 Feb 01 19:49	12° $\approx$ 33'54	0°-32'-44
min. Earth dist.	4419 Jun 29 13:28	9° $\overline{B}$ 38'16	17.84807 AU	minimum elong	4427 Feb 01 19:49	12° $\approx$ 33'54	0°32'45
direct	4419 Sep 14 15:56	7° $\overline{B}$ 35'20		max. Earth dist.	4427 Feb 02 06:11	12° $\approx$ 35'28	20.32376 AU
					4427 Mar 16 23:28	15° $\approx$	
conjunction	4420 Jan 02 21:00	11° $\overline{B}$ 54'19	0°-11'-31	retrograde	4427 May 20 09:54	16° $\approx$ 41'44	
minimum elong	4420 Jan 02 21:00	11° $\overline{B}$ 54'19	0°11'32		4427 Jul 28 18:07	15° $\approx$ $\overline{R}$	
behind sun begin	4420 Jan 02 16:13	11° $\overline{B}$ 53'36		opposition	4427 Aug 04 22:03	14° $\approx$ 42'35	0°-37'-38
behind sun end	4420 Jan 03 01:47	11° $\overline{B}$ 55'02		min. Earth dist.	4427 Aug 04 12:05	14° $\approx$ 43'36	18.35519 AU
max. Earth dist.	4420 Jan 02 18:44	11° $\overline{B}$ 53'58	19.87719 AU	direct	4427 Oct 21 00:29	12° $\approx$ 42'27	
retrograde	4420 Apr 19 00:40	16° $\overline{B}$ 07'38			4428 Jan 05 12:41	15° $\approx$	
opposition	4420 Jul 03 07:43	14° $\overline{B}$ 07'17	0°-14'-40				
min. Earth dist.	4420 Jul 03 07:51	14° $\overline{B}$ 07'16	17.90666 AU	conjunction	4428 Feb 06 06:33	16° $\approx$ 50'25	0°-35'-6
direct	4420 Sep 18 14:55	12° $\overline{B}$ 04'21		minimum elong	4428 Feb 06 06:32	16° $\approx$ 50'25	0°35'07
				max. Earth dist.	4428 Feb 06 16:55	16° $\approx$ 51'58	20.38620 AU
conjunction	4421 Jan 06 12:59	16° $\overline{B}$ 21'58	0°-14'-58	retrograde	4428 May 24 00:08	20° $\approx$ 57'32	
minimum elong	4421 Jan 06 12:59	16° $\overline{B}$ 21'58	0°14'59	opposition	4428 Aug 08 14:43	18° $\approx$ 58'29	0°-40'-7
behind sun begin	4421 Jan 06 10:24	16° $\overline{B}$ 21'35		min. Earth dist.	4428 Aug 08 03:20	18° $\approx$ 59'38	18.41663 AU
behind sun end	4421 Jan 06 15:35	16° $\overline{B}$ 22'21		direct	4428 Oct 24 15:10	16° $\approx$ 58'40	
max. Earth dist.	4421 Jan 06 13:23	16° $\overline{B}$ 22'01	19.93704 AU				
retrograde	4421 Apr 23 15:55	20° $\overline{B}$ 34'26		conjunction	4429 Feb 09 16:47	21° $\approx$ 05'20	0°-37'-15
opposition	4421 Jul 08 04:40	18° $\overline{B}$ 34'14	0°-18'-27	minimum elong	4429 Feb 09 16:47	21° $\approx$ 05'20	0°37'15
min. Earth dist.	4421 Jul 08 03:57	18° $\overline{B}$ 34'19	17.96777 AU	max. Earth dist.	4429 Feb 10 05:16	21° $\approx$ 07'11	20.44634 AU
direct	4421 Sep 23 11:19	16° $\overline{B}$ 31'41		retrograde	4429 May 28 12:09	25° $\approx$ 11'43	
				opposition	4429 Aug 13 06:58	23° $\approx$ 12'45	0°-42'-23
conjunction	4422 Jan 11 03:56	20° $\overline{B}$ 47'55	0°-18'-17	min. Earth dist.	4429 Aug 12 18:49	23° $\approx$ 13'59	18.47548 AU
minimum elong	4422 Jan 11 03:55	20° $\overline{B}$ 47'55	0°18'18	direct	4429 Oct 29 06:51	21° $\approx$ 13'15	
max. Earth dist.	4422 Jan 11 05:20	20° $\overline{B}$ 48'07	19.99935 AU				



conjunction	4430 Feb 14 02:04	25° $\approx$ 18'35	0°-39'-12	conjunction	4438 Mar 18 10:06	28° $\times$ 11'52	0°-46'-25
minimum elong	4430 Feb 14 02:04	25° $\approx$ 18'35	0°39'13	minimum elong	4438 Mar 18 10:06	28° $\times$ 11'52	0°46'26
max. Earth dist.	4430 Feb 14 14:30	25° $\approx$ 20'26	20.50389 AU	max. Earth dist.	4438 Mar 19 06:24	28° $\times$ 14'49	20.88161 AU
retrograde	4430 Jun 02 01:22	29° $\approx$ 24'18			4438 Apr 19 12:00	0° $\gamma$	
opposition	4430 Aug 17 22:34	27° $\approx$ 25'21	0°-44'-24	retrograde	4438 Jul 05 10:39	2° $\gamma$ 13'52	
min. Earth dist.	4430 Aug 17 09:12	27° $\approx$ 26'42	18.53180 AU	min. Earth dist.	4438 Sep 20 08:09	0° $\gamma$ 17'06	18.89987 AU
direct	4430 Nov 02 20:45	25° $\approx$ 26'07		opposition	4438 Sep 21 04:08	0° $\gamma$ 15'06	0°-51'-17
					4438 Sep 27 11:41	30° $\times$	
conjunction	4431 Feb 18 10:57	29° $\approx$ 30'09	0°-40'-55	direct	4438 Dec 06 12:10	28° $\times$ 17'55	
minimum elong	4431 Feb 18 10:57	29° $\approx$ 30'09	0°40'55		4439 Feb 09 19:31	0° $\gamma$	
max. Earth dist.	4431 Feb 19 01:32	29° $\approx$ 32'19	20.55887 AU				
	4431 Feb 26 20:09	0° $\times$		conjunction	4439 Mar 22 15:51	2° $\gamma$ 14'06	0°-46'-17
retrograde	4431 Jun 06 12:10	3° $\times$ 35'12		minimum elong	4439 Mar 22 15:52	2° $\gamma$ 14'06	0°46'18
opposition	4431 Aug 22 13:18	1° $\times$ 36'15	0°-46'-10	max. Earth dist.	4439 Mar 23 13:35	2° $\gamma$ 17'15	20.91642 AU
min. Earth dist.	4431 Aug 21 23:01	1° $\times$ 37'42	18.58553 AU	retrograde	4439 Jul 09 20:31	6° $\gamma$ 15'52	
	4431 Oct 07 20:02	30° $\times$		opposition	4439 Sep 25 14:26	4° $\gamma$ 17'10	0°-50'-59
direct	4431 Nov 07 10:53	29° $\approx$ 37'16		min. Earth dist.	4439 Sep 24 17:43	4° $\gamma$ 19'14	18.93257 AU
	4431 Dec 07 09:22	0° $\times$		direct	4439 Dec 10 21:29	2° $\gamma$ 20'13	
conjunction	4432 Feb 22 19:00	3° $\times$ 40'03	0°-42'-24	conjunction	4440 Mar 25 21:21	6° $\gamma$ 15'47	0°-45'-55
minimum elong	4432 Feb 22 19:00	3° $\times$ 40'03	0°42'25	minimum elong	4440 Mar 25 21:21	6° $\gamma$ 15'47	0°45'56
max. Earth dist.	4432 Feb 23 09:35	3° $\times$ 42'13	20.61145 AU	max. Earth dist.	4440 Mar 26 18:14	6° $\gamma$ 18'48	20.94690 AU
retrograde	4432 Jun 09 23:57	7° $\times$ 44'29		retrograde	4440 Jul 13 05:01	10° $\gamma$ 17'25	
opposition	4432 Aug 26 03:26	5° $\times$ 45'31	0°-47'-40	min. Earth dist.	4440 Sep 28 04:30	8° $\gamma$ 20'45	18.96081 AU
min. Earth dist.	4432 Aug 25 12:08	5° $\times$ 47'04	18.63714 AU	opposition	4440 Sep 29 00:37	8° $\gamma$ 18'44	0°-50'-27
direct	4432 Nov 10 23:18	3° $\times$ 46'46		direct	4440 Dec 14 04:10	6° $\gamma$ 21'59	
conjunction	4433 Feb 26 02:35	7° $\times$ 48'22	0°-43'-39	conjunction	4441 Mar 30 02:51	10° $\gamma$ 17'00	0°-45'-20
minimum elong	4433 Feb 26 02:35	7° $\times$ 48'22	0°43'41	minimum elong	4441 Mar 30 02:51	10° $\gamma$ 17'00	0°45'20
max. Earth dist.	4433 Feb 26 19:23	7° $\times$ 50'51	20.66193 AU	max. Earth dist.	4441 Mar 31 00:44	10° $\gamma$ 20'10	20.97262 AU
retrograde	4433 Jun 14 09:48	11° $\times$ 52'14		retrograde	4441 Jul 17 14:07	14° $\gamma$ 18'32	
opposition	4433 Aug 30 16:54	9° $\times$ 53'16	0°-48'-55	opposition	4441 Oct 03 10:24	12° $\gamma$ 19'51	0°-49'-40
min. Earth dist.	4433 Aug 30 00:20	9° $\times$ 54'56	18.68663 AU	min. Earth dist.	4441 Oct 02 13:40	12° $\gamma$ 21'56	18.98389 AU
direct	4433 Nov 15 11:52	7° $\times$ 54'46		direct	4441 Dec 18 13:14	10° $\gamma$ 23'15	
conjunction	4434 Mar 02 09:35	11° $\times$ 55'15	0°-44'-40	conjunction	4442 Apr 03 08:18	14° $\gamma$ 17'48	0°-44'-31
minimum elong	4434 Mar 02 09:35	11° $\times$ 55'15	0°44'41	minimum elong	4442 Apr 03 08:18	14° $\gamma$ 17'48	0°44'33
max. Earth dist.	4434 Mar 03 02:27	11° $\times$ 57'44	20.71050 AU	max. Earth dist.	4442 Apr 04 05:01	14° $\gamma$ 20'47	20.99306 AU
retrograde	4434 Jun 18 20:24	15° $\times$ 58'37		retrograde	4442 Jul 21 22:36	18° $\gamma$ 19'16	
opposition	4434 Sep 04 05:50	13° $\times$ 59'39	0°-49'-54	opposition	4442 Oct 07 19:54	16° $\gamma$ 20'32	0°-48'-39
min. Earth dist.	4434 Sep 03 12:25	14° $\times$ 01'24	18.73439 AU	min. Earth dist.	4442 Oct 07 00:06	16° $\gamma$ 22'31	19.00173 AU
direct	4434 Nov 19 22:29	12° $\times$ 01'24		direct	4442 Dec 22 19:22	14° $\gamma$ 24'01	
conjunction	4435 Mar 06 16:14	16° $\times$ 00'52	0°-45'-27	conjunction	4443 Apr 07 13:51	18° $\gamma$ 18'09	0°-43'-29
minimum elong	4435 Mar 06 16:14	16° $\times$ 00'52	0°45'29	minimum elong	4443 Apr 07 13:51	18° $\gamma$ 18'09	0°43'30
max. Earth dist.	4435 Mar 07 11:12	16° $\times$ 03'39	20.75717 AU	max. Earth dist.	4443 Apr 08 11:16	18° $\gamma$ 21'14	21.00818 AU
retrograde	4435 Jun 23 06:14	20° $\times$ 03'47		retrograde	4443 Jul 26 06:51	22° $\gamma$ 19'34	
opposition	4435 Sep 08 18:05	18° $\times$ 04'52	0°-50'-38	min. Earth dist.	4443 Oct 11 08:38	20° $\gamma$ 22'47	19.01406 AU
min. Earth dist.	4435 Sep 07 23:27	18° $\times$ 06'44	18.77990 AU	opposition	4443 Oct 12 04:54	20° $\gamma$ 20'46	0°-47'-23
direct	4435 Nov 24 09:25	16° $\times$ 06'53		direct	4443 Dec 27 03:40	18° $\gamma$ 24'17	
conjunction	4436 Mar 09 22:27	20° $\times$ 05'24	0°-46'00	conjunction	4444 Apr 10 19:10	22° $\gamma$ 18'03	0°-42'-15
minimum elong	4436 Mar 09 22:27	20° $\times$ 05'24	0°46'01	minimum elong	4444 Apr 10 19:10	22° $\gamma$ 18'03	0°42'17
max. Earth dist.	4436 Mar 10 17:16	20° $\times$ 08'09	20.80149 AU	max. Earth dist.	4444 Apr 11 15:22	22° $\gamma$ 20'58	21.01796 AU
retrograde	4436 Jun 26 15:44	24° $\times$ 07'56		retrograde	4444 Jul 29 14:48	26° $\gamma$ 19'28	
min. Earth dist.	4436 Sep 11 10:49	22° $\times$ 10'59	18.82302 AU	opposition	4444 Oct 15 13:37	24° $\gamma$ 20'33	0°-45'-54
opposition	4436 Sep 12 05:48	22° $\times$ 09'05	0°-51'-6	min. Earth dist.	4444 Oct 14 18:25	24° $\gamma$ 22'28	19.02144 AU
direct	4436 Nov 27 18:29	20° $\times$ 11'21		direct	4444 Dec 30 09:17	22° $\gamma$ 24'05	
conjunction	4437 Mar 14 04:32	24° $\times$ 09'01	0°-46'-20	conjunction	4445 Apr 15 00:38	26° $\gamma$ 17'34	0°-40'-48
minimum elong	4437 Mar 14 04:32	24° $\times$ 09'01	0°46'21	minimum elong	4445 Apr 15 00:38	26° $\gamma$ 17'34	0°40'49
max. Earth dist.	4437 Mar 15 01:09	24° $\times$ 12'02	20.84316 AU	max. Earth dist.	4445 Apr 15 21:39	26° $\gamma$ 20'35	21.02309 AU
retrograde	4437 Jul 01 01:49	28° $\times$ 11'14			4445 Jul 05 22:33	0° $\times$	
opposition	4437 Sep 16 17:07	26° $\times$ 12'26	0°-51'-19	retrograde	4445 Aug 02 22:44	0° $\times$ 19'01	
min. Earth dist.	4437 Sep 15 21:04	26° $\times$ 14'27	18.86310 AU		4445 Aug 31 10:03	30° $\times$	
direct	4437 Dec 02 04:22	24° $\times$ 15'00		opposition	4445 Oct 19 21:58	28° $\gamma$ 19'58	0°-44'-11
				min. Earth dist.	4445 Oct 19 02:08	28° $\gamma$ 21'57	19.02435 AU

direct	4446 Jan 03 16:50	26° $\Upsilon$ 23'29		opposition	4453 Nov 21 11:40	0° $\Pi$ 19'25	0°-23'-38
	4446 Apr 14 09:13	0° $\mathcal{B}$		min. Earth dist.	4453 Nov 20 20:17	0° $\Pi$ 20'59	18.91684 AU
					4453 Nov 29 11:34	30° $\mathcal{R}\mathcal{B}$	
conjunction	4446 Apr 19 05:56	0° $\mathcal{B}$ 16'46	0°-39'-9	direct	4454 Feb 04 13:33	28° $\mathcal{B}$ 22'28	
minimum elong	4446 Apr 19 05:56	0° $\mathcal{B}$ 16'46	0°39'11		4454 Apr 09 00:42	0° $\Pi$	
max. Earth dist.	4446 Apr 20 01:55	0° $\mathcal{B}$ 19'38	21.02399 AU				
retrograde	4446 Aug 07 06:26	4° $\mathcal{B}$ 18'19		conjunction	4454 May 21 11:54	2° $\Pi$ 17'36	0°-19'-58
min. Earth dist.	4446 Oct 23 11:27	2° $\mathcal{B}$ 21'01	19.02338 AU	minimum elong	4454 May 21 11:54	2° $\Pi$ 17'36	0°19'59
opposition	4446 Oct 24 06:11	2° $\mathcal{B}$ 19'08	0°-42'-15	max. Earth dist.	4454 May 22 03:07	2° $\Pi$ 19'46	20.90168 AU
direct	4447 Jan 07 21:32	0° $\mathcal{B}$ 22'36		retrograde	4454 Sep 09 07:46	6° $\Pi$ 22'01	
				opposition	4454 Nov 25 19:42	4° $\Pi$ 22'06	0°-20'-22
conjunction	4447 Apr 23 11:38	4° $\mathcal{B}$ 15'47	0°-37'-19	min. Earth dist.	4454 Nov 25 06:33	4° $\Pi$ 23'27	18.88556 AU
minimum elong	4447 Apr 23 11:38	4° $\mathcal{B}$ 15'47	0°37'20	direct	4455 Feb 08 18:53	2° $\Pi$ 25'00	
max. Earth dist.	4447 Apr 24 08:21	4° $\mathcal{B}$ 18'45	21.02118 AU				
retrograde	4447 Aug 11 14:48	8° $\mathcal{B}$ 17'29		conjunction	4455 May 25 21:03	6° $\Pi$ 20'45	0°-16'-58
opposition	4447 Oct 28 13:48	6° $\mathcal{B}$ 18'11	0°-40'-7	minimum elong	4455 May 25 21:03	6° $\Pi$ 20'45	0°16'58
min. Earth dist.	4447 Oct 27 18:32	6° $\mathcal{B}$ 20'07	19.01872 AU	max. Earth dist.	4455 May 26 11:37	6° $\Pi$ 22'51	20.86801 AU
direct	4448 Jan 12 04:35	4° $\mathcal{B}$ 21'36		retrograde	4455 Sep 13 19:34	10° $\Pi$ 25'43	
				opposition	4455 Nov 30 03:36	8° $\Pi$ 25'42	0°-16'-59
conjunction	4448 Apr 26 17:20	8° $\mathcal{B}$ 14'47	0°-35'-18	min. Earth dist.	4455 Nov 29 14:47	8° $\Pi$ 27'01	18.84937 AU
minimum elong	4448 Apr 26 17:20	8° $\mathcal{B}$ 14'47	0°35'19	direct	4456 Feb 13 02:32	6° $\Pi$ 28'24	
max. Earth dist.	4448 Apr 27 12:53	8° $\mathcal{B}$ 17'35	21.01479 AU				
retrograde	4448 Aug 14 22:34	12° $\mathcal{B}$ 16'42		conjunction	4456 May 29 06:35	10° $\Pi$ 24'50	0°-13'-51
opposition	4448 Oct 31 21:37	10° $\mathcal{B}$ 17'18	0°-37'-48	minimum elong	4456 May 29 06:35	10° $\Pi$ 24'50	0°13'53
min. Earth dist.	4448 Oct 31 03:34	10° $\mathcal{B}$ 19'07	19.01067 AU	behind sun begin	4456 May 29 03:12	10° $\Pi$ 24'21	
direct	4449 Jan 15 08:42	8° $\mathcal{B}$ 20'40		behind sun end	4456 May 29 09:59	10° $\Pi$ 25'18	
				max. Earth dist.	4456 May 29 18:56	10° $\Pi$ 26'36	20.82948 AU
conjunction	4449 Apr 30 23:19	12° $\mathcal{B}$ 13'56	0°-33'-7	retrograde	4456 Sep 17 05:20	14° $\Pi$ 30'24	
minimum elong	4449 Apr 30 23:19	12° $\mathcal{B}$ 13'56	0°33'09	opposition	4456 Dec 03 11:58	12° $\Pi$ 30'12	0°-13'-30
max. Earth dist.	4449 May 01 19:30	12° $\mathcal{B}$ 16'50	21.00509 AU	min. Earth dist.	4456 Dec 03 01:27	12° $\Pi$ 31'17	18.80857 AU
	4449 Jun 23 02:17	15° $\mathcal{B}$		direct	4457 Feb 16 08:06	10° $\Pi$ 32'40	
retrograde	4449 Aug 19 07:48	16° $\mathcal{B}$ 16'08					
	4449 Oct 17 20:55	15° $\mathcal{R}\mathcal{B}$		conjunction	4457 Jun 02 16:40	14° $\Pi$ 29'50	0°-10'-40
min. Earth dist.	4449 Nov 04 10:37	14° $\mathcal{B}$ 18'30	18.99920 AU	minimum elong	4457 Jun 02 16:41	14° $\Pi$ 29'50	0°10'41
opposition	4449 Nov 05 05:11	14° $\mathcal{B}$ 16'37	0°-35'-17	behind sun begin	4457 Jun 02 11:34	14° $\Pi$ 29'07	
direct	4450 Jan 19 15:23	12° $\mathcal{B}$ 19'58		behind sun end	4457 Jun 02 21:48	14° $\Pi$ 30'33	
	4450 Apr 13 13:29	15° $\mathcal{B}$		max. Earth dist.	4457 Jun 03 04:24	14° $\Pi$ 31'31	20.78666 AU
				retrograde	4457 Sep 21 18:17	18° $\Pi$ 36'01	
conjunction	4450 May 05 05:38	16° $\mathcal{B}$ 13'25	0°-30'-46	opposition	4457 Dec 07 20:19	16° $\Pi$ 35'39	0°-9'-56
minimum elong	4450 May 05 05:38	16° $\mathcal{B}$ 13'25	0°30'47	min. Earth dist.	4457 Dec 07 10:05	16° $\Pi$ 36'42	18.76367 AU
max. Earth dist.	4450 May 06 00:28	16° $\mathcal{B}$ 16'06	20.99195 AU	direct	4458 Feb 20 16:43	14° $\Pi$ 37'50	
retrograde	4450 Aug 23 16:06	20° $\mathcal{B}$ 15'57					
opposition	4450 Nov 09 12:46	18° $\mathcal{B}$ 16'21	0°-32'-37	conjunction	4458 Jun 07 03:25	18° $\Pi$ 35'49	0°-7'-26
min. Earth dist.	4450 Nov 08 19:43	18° $\mathcal{B}$ 18'05	18.98437 AU	minimum elong	4458 Jun 07 03:24	18° $\Pi$ 35'49	0°07'28
direct	4451 Jan 23 19:44	16° $\mathcal{B}$ 19'38		behind sun begin	4458 Jun 06 21:19	18° $\Pi$ 34'58	
				behind sun end	4458 Jun 07 09:30	18° $\Pi$ 36'40	
conjunction	4451 May 09 12:32	20° $\mathcal{B}$ 13'23	0°-28'-16	max. Earth dist.	4458 Jun 07 13:04	18° $\Pi$ 37'12	20.73997 AU
minimum elong	4451 May 09 12:33	20° $\mathcal{B}$ 13'23	0°28'19	retrograde	4458 Sep 26 04:20	22° $\Pi$ 42'38	
max. Earth dist.	4451 May 10 07:36	20° $\mathcal{B}$ 16'06	20.97539 AU	opposition	4458 Dec 12 04:52	20° $\Pi$ 42'04	0°-6'-18
retrograde	4451 Aug 28 02:11	24° $\mathcal{B}$ 16'17		min. Earth dist.	4458 Dec 11 20:58	20° $\Pi$ 42'53	18.71537 AU
opposition	4451 Nov 13 20:16	22° $\mathcal{B}$ 16'38	0°-29'-46	direct	4459 Feb 24 22:37	18° $\Pi$ 43'57	
min. Earth dist.	4451 Nov 13 02:58	22° $\mathcal{B}$ 18'23	18.96585 AU				
direct	4452 Jan 28 02:01	20° $\mathcal{B}$ 19'52		conjunction	4459 Jun 11 14:52	22° $\Pi$ 42'50	0°-4'-8
				minimum elong	4459 Jun 11 14:52	22° $\Pi$ 42'50	0°04'09
conjunction	4452 May 12 19:39	24° $\mathcal{B}$ 13'58	0°-25'-38	behind sun begin	4459 Jun 11 08:16	22° $\Pi$ 41'55	
minimum elong	4452 May 12 19:39	24° $\mathcal{B}$ 13'58	0°25'39	behind sun end	4459 Jun 11 21:27	22° $\Pi$ 43'46	
max. Earth dist.	4452 May 13 13:05	24° $\mathcal{B}$ 16'28	20.95497 AU	max. Earth dist.	4459 Jun 11 23:48	22° $\Pi$ 44'07	20.69029 AU
retrograde	4452 Aug 31 11:12	28° $\mathcal{B}$ 17'21		retrograde	4459 Sep 30 18:05	26° $\Pi$ 50'20	
opposition	4452 Nov 17 03:59	26° $\mathcal{B}$ 17'37	0°-26'-47	opposition	4459 Dec 16 13:35	24° $\Pi$ 49'35	0°-2'-37
min. Earth dist.	4452 Nov 16 12:31	26° $\mathcal{B}$ 19'11	18.94347 AU	min. Earth dist.	4459 Dec 16 05:54	24° $\Pi$ 50'23	18.66432 AU
direct	4453 Jan 31 06:55	24° $\mathcal{B}$ 20'46		direct	4460 Feb 29 08:00	22° $\Pi$ 51'09	
conjunction	4453 May 17 03:33	28° $\mathcal{B}$ 15'21	0°-22'-52	conjunction	4460 Jun 15 02:43	26° $\Pi$ 51'00	0°00'-45
minimum elong	4453 May 17 03:33	28° $\mathcal{B}$ 15'21	0°22'53	minimum elong	4460 Jun 15 02:41	26° $\Pi$ 51'00	0°00'46
max. Earth dist.	4453 May 17 20:50	28° $\mathcal{B}$ 17'49	20.93059 AU	behind sun begin	4460 Jun 14 20:00	26° $\Pi$ 50'04	
	4453 Jun 17 12:20	0° $\Pi$		behind sun end	4460 Jun 15 09:23	26° $\Pi$ 51'57	
retrograde	4453 Sep 04 22:08	2° $\Pi$ 19'13		max. Earth dist.	4460 Jun 15 09:47	26° $\Pi$ 52'01	20.63803 AU

	4460 Aug 15 14:24	0°♄		max. Earth dist.	4467 Jul 16 09:54	26°♄29'53	20.23706 AU
asc. node	4460 Sep 04 12:28	0°♄37'23			4467 Sep 23 13:26	0°♄	
retrograde	4460 Oct 04 05:04	0°♄59'14		retrograde	4467 Nov 04 12:35	0°♄44'21	
	4460 Nov 23 22:20	30°♄II			4467 Dec 17 02:59	30°♄♄	
opposition	4460 Dec 19 22:47	28°♄58'17	0°01'04	opposition	4468 Jan 19 02:42	28°♄42'38	0°26'22
min. Earth dist.	4460 Dec 19 17:14	28°♄58'52	18.61110 AU	min. Earth dist.	4468 Jan 19 05:35	28°♄42'19	18.20631 AU
direct	4461 Mar 04 14:46	26°♄59'33		direct	4468 Apr 02 18:31	26°♄41'46	
	4461 Jun 02 03:44	0°♄			4468 Jul 05 17:30	0°♄	
conjunction	4461 Jun 19 15:27	1°♄00'26	0°02'41	conjunction	4468 Jul 20 07:58	0°♄51'41	0°25'15
minimum elong	4461 Jun 19 15:27	1°♄00'26	0°02'40	minimum elong	4468 Jul 20 07:58	0°♄51'41	0°25'14
behind sun begin	4461 Jun 19 08:45	0°♄59'29		max. Earth dist.	4468 Jul 20 03:02	0°♄50'57	20.17544 AU
behind sun end	4461 Jun 19 22:09	1°♄01'23		retrograde	4468 Nov 08 04:58	5°♄06'30	
max. Earth dist.	4461 Jun 19 21:44	1°♄01'19	20.58402 AU	opposition	4469 Jan 22 16:00	3°♄04'40	0°29'39
retrograde	4461 Oct 08 19:20	5°♄09'24		min. Earth dist.	4469 Jan 22 21:12	3°♄04'07	18.14413 AU
opposition	4461 Dec 24 08:05	3°♄08'18	0°04'48	direct	4469 Apr 07 07:30	1°♄03'27	
min. Earth dist.	4461 Dec 24 02:43	3°♄08'51	18.55630 AU				
direct	4462 Mar 09 00:59	1°♄09'15		conjunction	4469 Jul 25 03:40	5°♄14'46	0°28'08
				minimum elong	4469 Jul 25 03:40	5°♄14'46	0°28'08
conjunction	4462 Jun 24 04:55	5°♄11'15	0°06'03	max. Earth dist.	4469 Jul 24 20:22	5°♄13'41	20.11281 AU
minimum elong	4462 Jun 24 04:54	5°♄11'15	0°06'02	retrograde	4469 Nov 12 23:31	9°♄30'24	
behind sun begin	4462 Jun 23 22:31	5°♄10'21		opposition	4470 Jan 27 05:38	7°♄28'26	0°32'47
behind sun end	4462 Jun 24 11:18	5°♄12'09		min. Earth dist.	4470 Jan 27 11:48	7°♄27'46	18.08108 AU
max. Earth dist.	4462 Jun 24 09:24	5°♄11'53	20.52849 AU	direct	4470 Apr 11 22:46	5°♄26'48	
retrograde	4462 Oct 13 07:38	9°♄21'00					
opposition	4462 Dec 28 18:00	7°♄19'45	0°08'31	conjunction	4470 Jul 30 00:19	9°♄39'33	0°30'53
min. Earth dist.	4462 Dec 28 14:47	7°♄20'05	18.50020 AU	minimum elong	4470 Jul 30 00:19	9°♄39'33	0°30'52
direct	4463 Mar 13 08:58	5°♄20'23		max. Earth dist.	4470 Jul 29 15:40	9°♄38'16	20.04937 AU
				retrograde	4470 Nov 17 17:03	13°♄55'57	
conjunction	4463 Jun 28 19:12	9°♄23'35	0°09'22	opposition	4471 Jan 31 20:04	11°♄53'51	0°35'46
minimum elong	4463 Jun 28 19:12	9°♄23'35	0°09'21	min. Earth dist.	4471 Feb 01 04:19	11°♄52'58	18.01753 AU
behind sun begin	4463 Jun 28 13:36	9°♄22'47		direct	4471 Apr 16 13:15	9°♄51'49	
behind sun end	4463 Jun 29 00:49	9°♄24'23					
max. Earth dist.	4463 Jun 28 22:37	9°♄24'03	20.47194 AU	conjunction	4471 Aug 03 21:27	14°♄05'58	0°33'28
retrograde	4463 Oct 17 22:39	13°♄34'08		minimum elong	4471 Aug 03 21:27	14°♄05'58	0°33'28
opposition	4464 Jan 02 04:09	11°♄32'46	0°12'12	max. Earth dist.	4471 Aug 03 10:25	14°♄04'19	19.98596 AU
min. Earth dist.	4464 Jan 02 01:10	11°♄33'05	18.44317 AU		4471 Aug 19 00:16	15°♄	
direct	4464 Mar 16 19:55	9°♄33'07		retrograde	4471 Nov 22 12:27	18°♄23'08	
				opposition	4472 Feb 05 10:56	16°♄20'52	0°38'32
conjunction	4464 Jul 02 10:17	13°♄37'33	0°12'40	min. Earth dist.	4472 Feb 05 20:06	16°♄19'53	17.95443 AU
minimum elong	4464 Jul 02 10:16	13°♄37'33	0°12'40		4472 Mar 10 17:02	15°♄♄	
behind sun begin	4464 Jul 02 06:06	13°♄36'57		direct	4472 Apr 20 05:52	14°♄18'25	
behind sun end	4464 Jul 02 14:27	13°♄38'09			4472 May 30 02:29	15°♄	
max. Earth dist.	4464 Jul 02 12:03	13°♄37'48	20.41448 AU				
retrograde	4464 Oct 21 12:16	17°♄48'57		conjunction	4472 Aug 07 19:30	18°♄33'59	0°35'51
opposition	4465 Jan 05 15:01	15°♄47'29	0°15'51	minimum elong	4472 Aug 07 19:30	18°♄33'59	0°35'51
min. Earth dist.	4465 Jan 05 14:12	15°♄47'34	18.38538 AU	max. Earth dist.	4472 Aug 07 07:46	18°♄32'14	19.92322 AU
direct	4465 Mar 21 05:34	13°♄47'33		retrograde	4472 Nov 26 07:19	22°♄51'53	
				opposition	4473 Feb 09 02:27	20°♄49'29	0°41'05
conjunction	4465 Jul 07 02:13	17°♄53'18	0°15'56	min. Earth dist.	4473 Feb 09 13:16	20°♄48'19	17.89238 AU
minimum elong	4465 Jul 07 02:13	17°♄53'18	0°15'55	direct	4473 Apr 24 21:59	18°♄46'38	
max. Earth dist.	4465 Jul 07 02:37	17°♄53'21	20.35641 AU				
retrograde	4465 Oct 26 04:17	22°♄05'34		conjunction	4473 Aug 12 18:05	23°♄03'35	0°38'02
opposition	4466 Jan 10 02:18	20°♄04'00	0°19'26	minimum elong	4473 Aug 12 18:05	23°♄03'35	0°38'02
min. Earth dist.	4466 Jan 10 01:59	20°♄04'02	18.32681 AU	max. Earth dist.	4473 Aug 12 04:00	23°♄01'28	19.86204 AU
direct	4466 Mar 25 17:29	18°♄03'46		retrograde	4473 Dec 01 03:27	27°♄22'12	
				opposition	4474 Feb 13 18:34	25°♄19'40	0°43'24
conjunction	4466 Jul 11 19:16	22°♄10'53	0°19'07	min. Earth dist.	4474 Feb 14 06:17	25°♄18'24	17.83225 AU
minimum elong	4466 Jul 11 19:16	22°♄10'53	0°19'07	direct	4474 Apr 29 15:39	23°♄16'24	
max. Earth dist.	4466 Jul 11 17:57	22°♄10'42	20.29726 AU				
retrograde	4466 Oct 30 19:25	26°♄24'00		conjunction	4474 Aug 17 17:34	27°♄34'46	0°39'59
opposition	4467 Jan 14 14:11	24°♄22'23	0°22'57	minimum elong	4474 Aug 17 17:34	27°♄34'46	0°40'00
min. Earth dist.	4467 Jan 14 16:17	24°♄22'10	18.26715 AU	max. Earth dist.	4474 Aug 17 03:15	27°♄32'36	19.80292 AU
direct	4467 Mar 30 04:58	22°♄21'51			4474 Sep 28 23:05	0°♄♄	
				retrograde	4474 Dec 05 23:51	1°♄54'03	
conjunction	4467 Jul 16 13:13	26°♄30'22	0°22'14		4475 Feb 15 03:55	30°♄♄	
minimum elong	4467 Jul 16 13:13	26°♄30'22	0°22'14	opposition	4475 Feb 18 11:16	29°♄51'24	0°45'28

min. Earth dist.	4475 Feb 19 00:08	29° $\Omega$ 50'01	17.77449 AU	direct	4483 Jun 10 15:29	4° $\underline{\Omega}$ 55'11	
direct	4475 May 04 09:34	27° $\Omega$ 47'47					
	4475 Jul 17 06:36	0° $\mathbb{M}$		conjunction	4483 Sep 30 12:36	9° $\underline{\Omega}$ 23'46	0°45'24
				minimum elong	4483 Sep 30 12:36	9° $\underline{\Omega}$ 23'46	0°45'23
conjunction	4475 Aug 22 17:28	2° $\mathbb{M}$ 07'30	0°41'42	max. Earth dist.	4483 Sep 29 14:00	9° $\underline{\Omega}$ 20'15	19.43010 AU
minimum elong	4475 Aug 22 17:28	2° $\mathbb{M}$ 07'30	0°41'42	retrograde	4484 Jan 17 08:28	13° $\underline{\Omega}$ 47'09	
max. Earth dist.	4475 Aug 22 00:55	2° $\mathbb{M}$ 04'59	19.74670 AU	opposition	4484 Mar 30 23:33	11° $\underline{\Omega}$ 44'36	0°50'08
retrograde	4475 Dec 10 20:32	6° $\mathbb{M}$ 27'27		min. Earth dist.	4484 Mar 31 19:12	11° $\underline{\Omega}$ 42'27	17.41838 AU
opposition	4476 Feb 23 04:43	4° $\mathbb{M}$ 24'43	0°47'15	direct	4484 Jun 14 15:30	9° $\underline{\Omega}$ 39'03	
min. Earth dist.	4476 Feb 23 18:24	4° $\mathbb{M}$ 23'14	17.72005 AU				
direct	4476 May 08 03:55	2° $\mathbb{M}$ 20'46		conjunction	4484 Oct 04 16:16	14° $\underline{\Omega}$ 08'17	0°44'29
				minimum elong	4484 Oct 04 16:16	14° $\underline{\Omega}$ 08'17	0°44'30
conjunction	4476 Aug 26 18:02	6° $\mathbb{M}$ 41'49	0°43'10	max. Earth dist.	4484 Oct 03 17:23	14° $\underline{\Omega}$ 04'43	19.40683 AU
minimum elong	4476 Aug 26 18:02	6° $\mathbb{M}$ 41'49	0°43'10	retrograde	4485 Jan 21 09:26	18° $\underline{\Omega}$ 31'45	
max. Earth dist.	4476 Aug 26 01:43	6° $\mathbb{M}$ 39'20	19.69394 AU	opposition	4485 Apr 04 22:21	16° $\underline{\Omega}$ 29'13	0°48'58
retrograde	4476 Dec 14 18:42	11° $\mathbb{M}$ 02'23		min. Earth dist.	4485 Apr 05 17:19	16° $\underline{\Omega}$ 27'09	17.39705 AU
opposition	4477 Feb 26 22:49	8° $\mathbb{M}$ 59'37	0°48'45	direct	4485 Jun 19 18:16	14° $\underline{\Omega}$ 23'30	
min. Earth dist.	4477 Feb 27 13:07	8° $\mathbb{M}$ 58'04	17.66917 AU				
direct	4477 May 12 23:40	6° $\mathbb{M}$ 55'24		conjunction	4485 Oct 09 20:06	18° $\underline{\Omega}$ 53'16	0°43'16
				minimum elong	4485 Oct 09 20:06	18° $\underline{\Omega}$ 53'16	0°43'16
conjunction	4477 Aug 31 19:12	11° $\mathbb{M}$ 17'44	0°44'22	max. Earth dist.	4485 Oct 08 21:13	18° $\underline{\Omega}$ 49'41	19.38759 AU
minimum elong	4477 Aug 31 19:12	11° $\mathbb{M}$ 17'44	0°44'21	retrograde	4486 Jan 26 08:06	23° $\underline{\Omega}$ 16'42	
max. Earth dist.	4477 Aug 31 00:48	11° $\mathbb{M}$ 14'55	19.64506 AU	opposition	4486 Apr 09 21:36	21° $\underline{\Omega}$ 14'11	0°47'27
retrograde	4477 Dec 19 15:36	15° $\mathbb{M}$ 38'54		min. Earth dist.	4486 Apr 10 17:43	21° $\underline{\Omega}$ 11'59	17.38013 AU
opposition	4478 Mar 03 17:29	13° $\mathbb{M}$ 36'08	0°49'56	direct	4486 Jun 24 18:35	19° $\underline{\Omega}$ 08'19	
min. Earth dist.	4478 Mar 04 08:50	13° $\mathbb{M}$ 34'27	17.62238 AU				
direct	4478 May 17 19:11	11° $\mathbb{M}$ 31'39		conjunction	4486 Oct 14 23:39	23° $\underline{\Omega}$ 38'28	0°41'46
				minimum elong	4486 Oct 14 23:39	23° $\underline{\Omega}$ 38'28	0°41'46
conjunction	4478 Sep 05 21:09	15° $\mathbb{M}$ 55'17	0°45'17	max. Earth dist.	4486 Oct 14 00:28	23° $\underline{\Omega}$ 34'50	19.37314 AU
minimum elong	4478 Sep 05 21:09	15° $\mathbb{M}$ 55'17	0°45'16	retrograde	4487 Jan 31 09:11	28° $\underline{\Omega}$ 01'49	
max. Earth dist.	4478 Sep 05 03:02	15° $\mathbb{M}$ 52'30	19.60021 AU	opposition	4487 Apr 14 21:08	25° $\underline{\Omega}$ 59'18	0°45'36
retrograde	4478 Dec 24 14:54	20° $\mathbb{M}$ 16'59		min. Earth dist.	4487 Apr 15 16:06	25° $\underline{\Omega}$ 57'14	17.36814 AU
opposition	4479 Mar 08 12:54	18° $\mathbb{M}$ 14'15	0°50'48	direct	4487 Jun 29 22:00	23° $\underline{\Omega}$ 53'18	
min. Earth dist.	4479 Mar 09 04:35	18° $\mathbb{M}$ 12'32	17.57947 AU	max. Earth dist.	4487 Oct 19 04:49	28° $\underline{\Omega}$ 20'14	19.36374 AU
direct	4479 May 22 16:55	16° $\mathbb{M}$ 09'36					
				conjunction	4487 Oct 20 02:54	28° $\underline{\Omega}$ 23'42	0°39'57
conjunction	4479 Sep 10 23:17	20° $\mathbb{M}$ 34'24	0°45'54	minimum elong	4487 Oct 20 02:54	28° $\underline{\Omega}$ 23'42	0°39'58
minimum elong	4479 Sep 10 23:17	20° $\mathbb{M}$ 34'24	0°45'55		4487 Nov 15 06:29	0° $\mathbb{M}$	
max. Earth dist.	4479 Sep 10 03:20	20° $\mathbb{M}$ 31'20	19.55921 AU	retrograde	4488 Feb 05 07:35	2° $\mathbb{M}$ 46'53	
retrograde	4479 Dec 29 12:04	24° $\mathbb{M}$ 56'37		opposition	4488 Apr 18 21:05	0° $\mathbb{M}$ 44'23	0°43'27
opposition	4480 Mar 12 09:02	22° $\mathbb{M}$ 53'55	0°51'21	min. Earth dist.	4488 Apr 19 16:37	0° $\mathbb{M}$ 42'16	17.36151 AU
min. Earth dist.	4480 Mar 13 02:02	22° $\mathbb{M}$ 52'04	17.54044 AU		4488 May 06 05:19	30° $\mathbb{R}$ $\underline{\Omega}$	
direct	4480 May 26 14:22	20° $\mathbb{M}$ 49'04		direct	4488 Jul 03 22:52	28° $\underline{\Omega}$ 38'19	
max. Earth dist.	4480 Sep 14 06:19	25° $\mathbb{M}$ 11'56	19.52192 AU		4488 Aug 29 19:18	0° $\mathbb{M}$	
				max. Earth dist.	4488 Oct 23 07:34	3° $\mathbb{M}$ 05'19	19.36006 AU
conjunction	4480 Sep 15 02:10	25° $\mathbb{M}$ 15'00	0°46'15				
minimum elong	4480 Sep 15 02:10	25° $\mathbb{M}$ 15'00	0°46'14	conjunction	4488 Oct 24 05:53	3° $\mathbb{M}$ 08'49	0°37'53
retrograde	4481 Jan 02 11:52	29° $\mathbb{M}$ 37'37		minimum elong	4488 Oct 24 05:53	3° $\mathbb{M}$ 08'49	0°37'52
opposition	4481 Mar 17 05:41	27° $\mathbb{M}$ 34'59	0°51'34	retrograde	4489 Feb 09 07:55	7° $\mathbb{M}$ 31'46	
min. Earth dist.	4481 Mar 17 22:46	27° $\mathbb{M}$ 33'07	17.50484 AU	opposition	4489 Apr 23 20:57	5° $\mathbb{M}$ 29'18	0°40'59
direct	4481 May 31 14:25	25° $\mathbb{M}$ 29'58		min. Earth dist.	4489 Apr 24 15:05	5° $\mathbb{M}$ 27'20	17.36079 AU
max. Earth dist.	4481 Sep 19 07:53	29° $\mathbb{M}$ 53'34	19.48794 AU	direct	4489 Jul 09 02:40	3° $\mathbb{M}$ 23'11	
conjunction	4481 Sep 20 05:24	29° $\mathbb{M}$ 56'54	0°46'16	conjunction	4489 Oct 29 08:43	7° $\mathbb{M}$ 53'42	0°35'33
minimum elong	4481 Sep 20 05:24	29° $\mathbb{M}$ 56'54	0°46'17	minimum elong	4489 Oct 29 08:43	7° $\mathbb{M}$ 53'42	0°35'33
	4481 Sep 21 01:27	0° $\underline{\Omega}$		max. Earth dist.	4489 Oct 28 12:13	7° $\mathbb{M}$ 50'29	19.36235 AU
retrograde	4482 Jan 07 09:34	4° $\underline{\Omega}$ 19'52		retrograde	4490 Feb 14 06:12	12° $\mathbb{M}$ 16'21	
opposition	4482 Mar 22 03:08	2° $\underline{\Omega}$ 17'16	0°51'27	opposition	4490 Apr 28 21:21	10° $\mathbb{M}$ 13'59	0°38'15
min. Earth dist.	4482 Mar 22 21:44	2° $\underline{\Omega}$ 15'14	17.47261 AU	min. Earth dist.	4490 Apr 29 15:28	10° $\mathbb{M}$ 12'00	17.36617 AU
direct	4482 Jun 05 13:33	0° $\underline{\Omega}$ 12'04		direct	4490 Jul 14 04:14	8° $\mathbb{M}$ 07'53	
max. Earth dist.	4482 Sep 24 11:12	4° $\underline{\Omega}$ 36'32	19.45732 AU				
				conjunction	4490 Nov 03 10:50	12° $\mathbb{M}$ 38'16	0°32'58
conjunction	4482 Sep 25 08:55	4° $\underline{\Omega}$ 39'54	0°45'59	minimum elong	4490 Nov 03 10:50	12° $\mathbb{M}$ 38'16	0°32'58
minimum elong	4482 Sep 25 08:55	4° $\underline{\Omega}$ 39'54	0°45'59	max. Earth dist.	4490 Nov 02 14:18	12° $\mathbb{M}$ 35'03	19.37098 AU
retrograde	4483 Jan 12 10:00	9° $\underline{\Omega}$ 03'07			4490 Dec 13 00:04	15° $\mathbb{M}$	
opposition	4483 Mar 27 01:02	7° $\underline{\Omega}$ 00'33	0°50'58	retrograde	4491 Feb 19 06:05	17° $\mathbb{M}$ 00'36	
min. Earth dist.	4483 Mar 27 19:19	6° $\underline{\Omega}$ 58'33	17.44364 AU	opposition	4491 May 03 21:45	14° $\mathbb{M}$ 58'20	0°35'15

	4491 May 03 06:26	15° <del>R</del> <del>M</del>		conjunction	4498 Dec 11 09:22	20° <del>♂</del> 12'36	0°06'23
min. Earth dist.	4491 May 04 14:19	14° <del>M</del> 56'33	17.37793 AU	minimum elong	4498 Dec 11 09:22	20° <del>♂</del> 12'36	0°06'23
direct	4491 Jul 19 08:16	12° <del>M</del> 52'20		behind sun begin	4498 Dec 11 03:06	20° <del>♂</del> 11'39	
	4491 Sep 29 17:15	15° <del>M</del>		behind sun end	4498 Dec 11 15:37	20° <del>♂</del> 13'34	
				max. Earth dist.	4498 Dec 10 22:50	20° <del>♂</del> 10'59	19.61859 AU
conjunction	4491 Nov 08 12:47	17° <del>M</del> 22'31	0°30'10	retrograde	4499 Mar 28 12:17	24° <del>♂</del> 30'12	
minimum elong	4491 Nov 08 12:48	17° <del>M</del> 22'31	0°30'11	opposition	4499 Jun 11 01:05	22° <del>♂</del> 29'20	0°05'01
max. Earth dist.	4491 Nov 07 18:31	17° <del>M</del> 19'39	19.38582 AU	min. Earth dist.	4499 Jun 11 10:11	22° <del>♂</del> 28'22	17.64140 AU
retrograde	4492 Feb 24 04:10	21° <del>M</del> 44'26		direct	4499 Aug 27 01:25	20° <del>♂</del> 25'02	
opposition	4492 May 07 22:16	19° <del>M</del> 42'21	0°32'01				
min. Earth dist.	4492 May 08 14:25	19° <del>M</del> 40'36	17.39564 AU	conjunction	4499 Dec 16 05:52	24° <del>♂</del> 49'13	0°02'40
direct	4492 Jul 23 10:17	17° <del>M</del> 36'31		minimum elong	4499 Dec 16 05:51	24° <del>♂</del> 49'13	0°02'42
				behind sun begin	4499 Dec 15 23:15	24° <del>♂</del> 48'13	
conjunction	4492 Nov 12 14:06	22° <del>M</del> 06'21	0°27'11	behind sun end	4499 Dec 16 12:27	24° <del>♂</del> 50'13	
minimum elong	4492 Nov 12 14:06	22° <del>M</del> 06'21	0°27'12	max. Earth dist.	4499 Dec 15 20:57	24° <del>♂</del> 47'51	19.66497 AU
max. Earth dist.	4492 Nov 11 19:49	22° <del>M</del> 03'29	19.40645 AU	retrograde	4500 Apr 02 09:13	29° <del>♂</del> 05'58	
retrograde	4493 Feb 28 03:30	26° <del>M</del> 27'50		opposition	4500 Jun 16 00:14	27° <del>♂</del> 05'12	0°00'52
opposition	4493 May 12 22:52	24° <del>M</del> 25'56	0°28'35	min. Earth dist.	4500 Jun 16 07:11	27° <del>♂</del> 04'28	17.68900 AU
min. Earth dist.	4493 May 13 13:50	24° <del>M</del> 24'19	17.41889 AU	direct	4500 Sep 01 03:09	25° <del>♂</del> 01'08	
direct	4493 Jul 28 13:54	22° <del>M</del> 20'17		desc. node	4500 Sep 02 01:08	25° <del>♂</del> 01'10	
conjunction	4493 Nov 17 15:04	26° <del>M</del> 49'40	0°24'01	conjunction	4500 Dec 21 01:28	29° <del>♂</del> 24'07	0°-1'-8
minimum elong	4493 Nov 17 15:04	26° <del>M</del> 49'40	0°24'01	minimum elong	4500 Dec 21 01:26	29° <del>♂</del> 24'06	0°01'08
max. Earth dist.	4493 Nov 16 23:00	26° <del>M</del> 47'09	19.43217 AU	behind sun begin	4500 Dec 20 18:50	29° <del>♂</del> 23'07	
	4494 Jan 12 20:40	0° <del>♂</del>		behind sun end	4500 Dec 21 08:03	29° <del>♂</del> 25'06	
retrograde	4494 Mar 05 01:29	1° <del>♂</del> 10'38		max. Earth dist.	4500 Dec 20 18:07	29° <del>♂</del> 23'00	19.71396 AU
	4494 Apr 27 13:21	30° <del>R</del> <del>M</del>			4500 Dec 30 17:09	0° <del>♂</del>	
opposition	4494 May 17 23:33	29° <del>M</del> 08'57	0°24'57	retrograde	4501 Apr 07 03:36	3° <del>♂</del> 40'00	
min. Earth dist.	4494 May 18 13:43	29° <del>M</del> 07'26	17.44682 AU	opposition	4501 Jun 20 23:13	1° <del>♂</del> 39'20	0°-3'-14
direct	4494 Aug 02 16:49	27° <del>M</del> 03'31		min. Earth dist.	4501 Jun 21 05:35	1° <del>♂</del> 38'40	17.73945 AU
	4494 Oct 28 14:46	0° <del>♂</del>			4501 Aug 05 16:51	30° <del>R</del> <del>♂</del>	
				direct	4501 Sep 06 01:54	29° <del>♂</del> 35'30	
conjunction	4494 Nov 22 15:18	1° <del>♂</del> 32'19	0°20'41		4501 Oct 06 23:07	0° <del>♂</del>	
minimum elong	4494 Nov 22 15:18	1° <del>♂</del> 32'19	0°20'43				
max. Earth dist.	4494 Nov 21 23:24	1° <del>♂</del> 29'50	19.46237 AU	conjunction	4501 Dec 25 19:55	3° <del>♂</del> 57'10	0°-4'-50
retrograde	4495 Mar 09 23:39	5° <del>♂</del> 52'44		minimum elong	4501 Dec 25 19:55	3° <del>♂</del> 57'11	0°04'50
opposition	4495 May 23 00:15	3° <del>♂</del> 51'14	0°21'10	behind sun begin	4501 Dec 25 13:29	3° <del>♂</del> 56'12	
min. Earth dist.	4495 May 23 13:29	3° <del>♂</del> 49'49	17.47915 AU	behind sun end	4501 Dec 26 02:22	3° <del>♂</del> 58'09	
direct	4495 Aug 07 19:22	1° <del>♂</del> 46'01		max. Earth dist.	4501 Dec 25 14:14	3° <del>♂</del> 56'19	19.76591 AU
				retrograde	4502 Apr 11 22:50	8° <del>♂</del> 12'12	
conjunction	4495 Nov 27 14:55	6° <del>♂</del> 14'07	0°17'14	opposition	4502 Jun 25 21:35	6° <del>♂</del> 11'37	0°-7'-18
minimum elong	4495 Nov 27 14:55	6° <del>♂</del> 14'07	0°17'14	min. Earth dist.	4502 Jun 26 01:14	6° <del>♂</del> 11'14	17.79283 AU
max. Earth dist.	4495 Nov 27 01:06	6° <del>♂</del> 11'58	19.49663 AU	direct	4502 Sep 11 03:03	4° <del>♂</del> 08'03	
retrograde	4496 Mar 13 21:42	10° <del>♂</del> 33'54					
opposition	4496 May 27 00:47	8° <del>♂</del> 32'36	0°17'15	conjunction	4502 Dec 30 13:36	8° <del>♂</del> 28'24	0°-8'-26
min. Earth dist.	4496 May 27 12:46	8° <del>♂</del> 31'19	17.51506 AU	minimum elong	4502 Dec 30 13:36	8° <del>♂</del> 28'24	0°08'27
direct	4496 Aug 11 22:22	6° <del>♂</del> 27'37		behind sun begin	4502 Dec 30 07:48	8° <del>♂</del> 27'32	
				behind sun end	4502 Dec 30 19:24	8° <del>♂</del> 29'16	
conjunction	4496 Dec 01 13:51	10° <del>♂</del> 54'53	0°13'41	max. Earth dist.	4502 Dec 30 10:11	8° <del>♂</del> 27'54	19.82082 AU
minimum elong	4496 Dec 01 13:51	10° <del>♂</del> 54'53	0°13'41	retrograde	4503 Apr 16 15:45	12° <del>♂</del> 42'33	
behind sun begin	4496 Dec 01 10:15	10° <del>♂</del> 54'20		opposition	4503 Jun 30 19:32	10° <del>♂</del> 42'04	0°-11'-17
behind sun end	4496 Dec 01 17:28	10° <del>♂</del> 55'26		min. Earth dist.	4503 Jun 30 22:23	10° <del>♂</del> 41'47	17.84940 AU
max. Earth dist.	4496 Dec 01 00:29	10° <del>♂</del> 52'48	19.53425 AU	direct	4503 Sep 16 00:37	8° <del>♂</del> 38'49	
retrograde	4497 Mar 18 18:35	15° <del>♂</del> 13'59					
opposition	4497 Jun 01 01:04	13° <del>♂</del> 12'51	0°13'14	conjunction	4504 Jan 04 06:16	12° <del>♂</del> 57'48	0°-11'-58
min. Earth dist.	4497 Jun 01 12:28	13° <del>♂</del> 11'38	17.55432 AU	minimum elong	4504 Jan 04 06:16	12° <del>♂</del> 57'48	0°11'59
direct	4497 Aug 16 23:12	11° <del>♂</del> 08'05		behind sun begin	4504 Jan 04 01:41	12° <del>♂</del> 57'06	
				behind sun end	4504 Jan 04 10:51	12° <del>♂</del> 58'29	
conjunction	4497 Dec 06 12:08	15° <del>♂</del> 34'27	0°10'03	max. Earth dist.	4504 Jan 04 04:15	12° <del>♂</del> 57'30	19.87895 AU
minimum elong	4497 Dec 06 12:08	15° <del>♂</del> 34'27	0°10'04	retrograde	4504 Apr 20 09:42	17° <del>♂</del> 11'05	
behind sun begin	4497 Dec 06 06:47	15° <del>♂</del> 33'38		opposition	4504 Jul 04 16:46	15° <del>♂</del> 10'45	0°-15'-10
behind sun end	4497 Dec 06 17:29	15° <del>♂</del> 35'16		min. Earth dist.	4504 Jul 04 16:43	15° <del>♂</del> 10'45	17.90887 AU
max. Earth dist.	4497 Dec 06 00:33	15° <del>♂</del> 32'39	19.57505 AU	direct	4504 Sep 19 23:55	13° <del>♂</del> 07'50	
retrograde	4498 Mar 23 16:38	19° <del>♂</del> 52'48					
opposition	4498 Jun 06 01:14	17° <del>♂</del> 51'49	0°09'08	conjunction	4505 Jan 07 22:12	17° <del>♂</del> 25'26	0°-15'-24
min. Earth dist.	4498 Jun 06 10:51	17° <del>♂</del> 50'48	17.59643 AU	minimum elong	4505 Jan 07 22:12	17° <del>♂</del> 25'26	0°15'25
direct	4498 Aug 22 01:48	15° <del>♂</del> 47'18		behind sun begin	4505 Jan 07 20:07	17° <del>♂</del> 25'08	

behind sun end	4505 Jan 08 00:18	17°☾25'45		direct	4512 Oct 26 01:28	18°☾00'58	
max. Earth dist.	4505 Jan 07 22:42	17°☾25'31	19.93969 AU				
retrograde	4505 Apr 25 01:23	21°☾37'53		conjunction	4513 Feb 11 02:06	22°☾07'34	0°-37'-38
opposition	4505 Jul 09 13:36	19°☾37'43	0°-18'-56	minimum elong	4513 Feb 11 02:06	22°☾07'34	0°37'39
min. Earth dist.	4505 Jul 09 12:50	19°☾37'47	17.97080 AU	max. Earth dist.	4513 Feb 11 14:06	22°☾09'21	20.44457 AU
direct	4505 Sep 24 20:17	17°☾35'10		retrograde	4513 May 29 20:32	26°☾13'50	
				opposition	4513 Aug 14 15:34	24°☾14'47	0°-42'-47
conjunction	4506 Jan 12 13:14	21°☾51'24	0°-18'-44	min. Earth dist.	4513 Aug 14 03:55	24°☾15'58	18.47316 AU
minimum elong	4506 Jan 12 13:14	21°☾51'24	0°18'45	direct	4513 Oct 30 16:20	22°☾15'10	
max. Earth dist.	4506 Jan 12 14:48	21°☾51'38	20.00273 AU				
retrograde	4506 Apr 29 18:16	26°☾03'01		conjunction	4514 Feb 15 11:20	26°☾20'26	0°-39'-33
opposition	4506 Jul 14 09:50	24°☾03'01	0°-22'-34	minimum elong	4514 Feb 15 11:20	26°☾20'26	0°39'33
min. Earth dist.	4506 Jul 14 06:19	24°☾03'23	18.03464 AU	max. Earth dist.	4514 Feb 15 23:25	26°☾22'14	20.50120 AU
direct	4506 Sep 29 17:19	22°☾00'52			4514 May 02 07:49	0°☾	
				retrograde	4514 Jun 03 09:03	0°☾26'03	
conjunction	4507 Jan 17 03:28	26°☾15'42	0°-21'-56		4514 Jul 06 07:02	30°☾	
minimum elong	4507 Jan 17 03:28	26°☾15'42	0°21'56	opposition	4514 Aug 19 06:57	28°☾27'01	0°-44'-46
max. Earth dist.	4507 Jan 17 07:37	26°☾16'20	20.06715 AU	min. Earth dist.	4514 Aug 18 17:48	28°☾28'20	18.52886 AU
	4507 Apr 02 15:56	0°☾		direct	4514 Nov 04 05:49	26°☾27'39	
retrograde	4507 May 04 09:11	0°☾26'30			4515 Feb 10 22:16	0°☾	
	4507 Jun 05 23:49	30°☾					
opposition	4507 Jul 19 05:40	28°☾26'42	0°-26'-3	conjunction	4515 Feb 19 19:58	0°☾31'40	0°-41'-14
min. Earth dist.	4507 Jul 19 01:33	28°☾27'07	18.09952 AU	minimum elong	4515 Feb 19 19:58	0°☾31'40	0°41'15
direct	4507 Oct 04 12:01	26°☾24'58		max. Earth dist.	4515 Feb 20 10:26	0°☾33'48	20.55585 AU
	4508 Jan 11 03:51	0°☾		retrograde	4515 Jun 07 20:00	4°☾36'38	
				opposition	4515 Aug 23 21:41	2°☾37'36	0°-46'-30
conjunction	4508 Jan 21 16:57	0°☾38'24	0°-25'00	min. Earth dist.	4515 Aug 23 07:38	2°☾39'02	18.58260 AU
minimum elong	4508 Jan 21 16:57	0°☾38'23	0°25'01	direct	4515 Nov 08 19:45	0°☾38'32	
max. Earth dist.	4508 Jan 21 21:45	0°☾39'07	20.13232 AU				
retrograde	4508 May 08 01:06	4°☾48'23		conjunction	4516 Feb 24 03:55	4°☾41'18	0°-42'-42
opposition	4508 Jul 23 00:37	2°☾48'46	0°-29'-21	minimum elong	4516 Feb 24 03:55	4°☾41'18	0°42'43
min. Earth dist.	4508 Jul 22 18:11	2°☾49'25	18.16478 AU	max. Earth dist.	4516 Feb 24 18:31	4°☾43'28	20.60875 AU
direct	4508 Oct 08 07:07	0°☾47'25		retrograde	4516 Jun 11 07:28	8°☾45'41	
				opposition	4516 Aug 27 11:36	6°☾46'41	0°-47'-59
conjunction	4509 Jan 25 05:53	4°☾59'28	0°-27'-53	min. Earth dist.	4516 Aug 26 20:12	6°☾48'14	18.63483 AU
minimum elong	4509 Jan 25 05:53	4°☾59'28	0°27'54	direct	4516 Nov 12 07:04	4°☾47'52	
max. Earth dist.	4509 Jan 25 13:04	5°☾00'33	20.19738 AU				
retrograde	4509 May 12 15:00	9°☾08'41		conjunction	4517 Feb 27 11:31	8°☾49'31	0°-43'-55
opposition	4509 Jul 27 19:20	7°☾09'13	0°-32'-28	minimum elong	4517 Feb 27 11:31	8°☾49'31	0°43'56
min. Earth dist.	4509 Jul 27 12:24	7°☾09'56	18.22958 AU	max. Earth dist.	4517 Feb 28 04:26	8°☾52'01	20.66012 AU
direct	4509 Oct 13 00:21	5°☾08'17		retrograde	4517 Jun 15 17:45	12°☾53'21	
				min. Earth dist.	4517 Aug 31 08:34	10°☾56'04	18.68539 AU
conjunction	4510 Jan 29 17:49	9°☾18'56	0°-30'-37	opposition	4517 Sep 01 01:06	10°☾54'24	0°-49'-12
minimum elong	4510 Jan 29 17:49	9°☾18'56	0°30'37	direct	4517 Nov 16 19:55	8°☾55'53	
max. Earth dist.	4510 Jan 30 01:22	9°☾20'04	20.26174 AU				
retrograde	4510 May 17 06:12	13°☾27'24		conjunction	4518 Mar 03 18:21	12°☾56'26	0°-44'-55
opposition	4510 Aug 01 13:23	11°☾28'04	0°-35'-23	minimum elong	4518 Mar 03 18:21	12°☾56'26	0°44'56
min. Earth dist.	4510 Aug 01 04:24	11°☾28'59	18.29339 AU	max. Earth dist.	4518 Mar 04 11:21	12°☾58'56	20.70985 AU
direct	4510 Oct 17 17:53	9°☾27'30		retrograde	4518 Jun 20 04:55	16°☾59'49	
				opposition	4518 Sep 05 14:00	15°☾00'55	0°-50'-9
conjunction	4511 Feb 03 05:22	13°☾36'47	0°-33'-9	min. Earth dist.	4518 Sep 04 20:25	15°☾02'41	18.73428 AU
minimum elong	4511 Feb 03 05:22	13°☾36'47	0°33'10	direct	4518 Nov 21 05:49	13°☾02'41	
max. Earth dist.	4511 Feb 03 15:09	13°☾38'15	20.32469 AU				
	4511 Feb 26 16:18	15°☾		conjunction	4519 Mar 08 01:05	17°☾02'14	0°-45'-40
retrograde	4511 May 21 18:55	17°☾44'30		minimum elong	4519 Mar 08 01:05	17°☾02'14	0°45'40
opposition	4511 Aug 06 06:44	15°☾45'18	0°-38'-5	max. Earth dist.	4519 Mar 08 20:11	17°☾05'02	20.75762 AU
min. Earth dist.	4511 Aug 05 21:19	15°☾46'15	18.35547 AU	retrograde	4519 Jun 24 14:30	21°☾05'11	
	4511 Aug 25 07:12	15°☾		min. Earth dist.	4519 Sep 09 07:38	19°☾08'13	18.78086 AU
direct	4511 Oct 22 09:44	13°☾45'04		opposition	4519 Sep 10 02:09	19°☾06'21	0°-50'-51
	4511 Dec 16 13:07	15°☾		direct	4519 Nov 25 17:22	17°☾08'26	
conjunction	4512 Feb 07 16:02	17°☾53'00	0°-35'-30	conjunction	4520 Mar 11 07:18	21°☾07'03	0°-46'-12
minimum elong	4512 Feb 07 16:01	17°☾53'00	0°35'30	minimum elong	4520 Mar 11 07:18	21°☾07'03	0°46'13
max. Earth dist.	4512 Feb 08 01:49	17°☾54'28	20.38577 AU	max. Earth dist.	4520 Mar 12 02:08	21°☾09'48	20.80294 AU
retrograde	4512 May 25 08:51	22°☾00'00		retrograde	4520 Jun 28 01:20	25°☾09'38	
opposition	4512 Aug 09 23:27	20°☾00'52	0°-40'-33	opposition	4520 Sep 13 14:01	23°☾10'52	0°-51'-18
min. Earth dist.	4512 Aug 09 12:24	20°☾02'00	18.41551 AU	min. Earth dist.	4520 Sep 12 18:55	23°☾12'46	18.82486 AU

direct	4520 Nov 29 02:11	21° <del>✕</del> 13'13		direct	4528 Dec 31 18:01	23° <del>Υ</del> 25'22	
conjunction	4521 Mar 15 13:19	25° <del>✕</del> 10'59	0°-46'-30	conjunction	4529 Apr 16 09:12	27° <del>Υ</del> 18'44	0°-40'-45
minimum elong	4521 Mar 15 13:19	25° <del>✕</del> 10'59	0°46'30	minimum elong	4529 Apr 16 09:12	27° <del>Υ</del> 18'44	0°40'46
max. Earth dist.	4521 Mar 16 09:58	25° <del>✕</del> 13'59	20.84533 AU	max. Earth dist.	4529 Apr 17 06:26	27° <del>Υ</del> 21'47	21.02432 AU
retrograde	4521 Jul 02 10:09	29° <del>✕</del> 13'15			4529 Jun 06 13:35	0° <del>✕</del>	
min. Earth dist.	4521 Sep 17 05:30	27° <del>✕</del> 16'32	18.86554 AU	retrograde	4529 Aug 04 06:57	1° <del>✕</del> 20'01	
opposition	4521 Sep 18 01:25	27° <del>✕</del> 14'32	0°-51'-29		4529 Oct 04 16:41	30° <del>✕</del> <del>Υ</del>	
direct	4521 Dec 03 12:39	25° <del>✕</del> 17'11		min. Earth dist.	4529 Oct 20 10:18	29° <del>Υ</del> 22'54	19.02605 AU
				opposition	4529 Oct 21 06:04	29° <del>Υ</del> 20'55	0°-44'-6
conjunction	4522 Mar 19 19:04	29° <del>✕</del> 14'08	0°-46'-34	direct	4530 Jan 05 01:23	27° <del>Υ</del> 24'21	
minimum elong	4522 Mar 19 19:04	29° <del>✕</del> 14'08	0°46'35		4530 Mar 28 16:42	0° <del>✕</del>	
max. Earth dist.	4522 Mar 20 15:11	29° <del>✕</del> 17'04	20.88424 AU				
	4522 Apr 02 00:00	0° <del>Υ</del>		conjunction	4530 Apr 20 14:31	1° <del>✕</del> 17'33	0°-39'-4
retrograde	4522 Jul 06 20:26	3° <del>Υ</del> 16'09		minimum elong	4530 Apr 20 14:32	1° <del>✕</del> 17'33	0°39'05
opposition	4522 Sep 22 12:23	1° <del>Υ</del> 17'29	0°-51'-25	max. Earth dist.	4530 Apr 21 10:36	1° <del>✕</del> 20'25	21.02620 AU
min. Earth dist.	4522 Sep 21 16:26	1° <del>Υ</del> 19'28	18.90261 AU	retrograde	4530 Aug 08 14:33	5° <del>✕</del> 18'57	
	4522 Oct 27 18:54	30° <del>✕</del> <del>✕</del>		opposition	4530 Oct 25 14:06	3° <del>✕</del> 19'44	0°-42'-9
direct	4522 Dec 07 20:35	29° <del>✕</del> 20'21		min. Earth dist.	4530 Oct 24 19:15	3° <del>✕</del> 21'38	19.02619 AU
	4523 Jan 16 14:32	0° <del>Υ</del>		direct	4531 Jan 09 06:16	1° <del>✕</del> 23'10	
conjunction	4523 Mar 24 00:52	3° <del>Υ</del> 16'36	0°-46'-24	conjunction	4531 Apr 24 20:09	5° <del>✕</del> 16'18	0°-37'-13
minimum elong	4523 Mar 24 00:52	3° <del>Υ</del> 16'36	0°46'25	minimum elong	4531 Apr 24 20:09	5° <del>✕</del> 16'18	0°37'14
max. Earth dist.	4523 Mar 24 22:21	3° <del>Υ</del> 19'43	20.91912 AU	max. Earth dist.	4531 Apr 25 17:01	5° <del>✕</del> 19'17	21.02454 AU
retrograde	4523 Jul 11 04:52	7° <del>Υ</del> 18'23		retrograde	4531 Aug 12 23:08	9° <del>✕</del> 17'53	
opposition	4523 Sep 26 22:53	5° <del>Υ</del> 19'45	0°-51'-6	opposition	4531 Oct 29 21:52	7° <del>✕</del> 18'36	0°-39'-59
min. Earth dist.	4523 Sep 26 02:25	5° <del>Υ</del> 21'47	18.93517 AU	min. Earth dist.	4531 Oct 29 02:30	7° <del>✕</del> 20'32	19.02267 AU
direct	4523 Dec 12 05:50	3° <del>Υ</del> 22'50		direct	4532 Jan 13 12:58	5° <del>✕</del> 22'02	
conjunction	4524 Mar 27 06:22	7° <del>Υ</del> 18'25	0°-46'00	conjunction	4532 Apr 28 01:43	9° <del>✕</del> 15'10	0°-35'-11
minimum elong	4524 Mar 27 06:22	7° <del>Υ</del> 18'25	0°46'01	minimum elong	4532 Apr 28 01:43	9° <del>✕</del> 15'10	0°35'12
max. Earth dist.	4524 Mar 28 02:53	7° <del>Υ</del> 21'23	20.94926 AU	max. Earth dist.	4532 Apr 28 21:18	9° <del>✕</del> 17'58	21.01928 AU
retrograde	4524 Jul 14 13:56	11° <del>Υ</del> 20'01		retrograde	4532 Aug 16 07:15	13° <del>✕</del> 17'01	
opposition	4524 Sep 30 09:04	9° <del>Υ</del> 21'23	0°-50'-32	min. Earth dist.	4532 Nov 01 11:25	11° <del>✕</del> 19'30	19.01568 AU
min. Earth dist.	4524 Sep 29 13:03	9° <del>Υ</del> 23'22	18.96288 AU	opposition	4532 Nov 02 05:42	11° <del>✕</del> 17'39	0°-37'-39
direct	4524 Dec 15 13:16	7° <del>Υ</del> 24'37		direct	4533 Jan 16 17:32	9° <del>✕</del> 21'05	
conjunction	4525 Mar 31 12:01	11° <del>Υ</del> 19'38	0°-45'-23	conjunction	4533 May 02 07:51	13° <del>✕</del> 14'21	0°-32'-58
minimum elong	4525 Mar 31 12:01	11° <del>Υ</del> 19'38	0°45'25	minimum elong	4533 May 02 07:51	13° <del>✕</del> 14'21	0°32'59
max. Earth dist.	4525 Apr 01 09:33	11° <del>Υ</del> 22'44	20.97434 AU	max. Earth dist.	4533 May 03 04:05	13° <del>✕</del> 17'15	21.01055 AU
retrograde	4525 Jul 18 22:34	15° <del>Υ</del> 21'04			4533 Jun 03 01:51	15° <del>✕</del>	
opposition	4525 Oct 04 18:52	13° <del>Υ</del> 22'23	0°-49'-43	retrograde	4533 Aug 20 16:14	17° <del>✕</del> 16'31	
min. Earth dist.	4525 Oct 03 22:27	13° <del>Υ</del> 24'26	18.98525 AU	opposition	4533 Nov 06 13:19	15° <del>✕</del> 17'06	0°-35'-7
direct	4525 Dec 19 21:46	11° <del>Υ</del> 25'45		min. Earth dist.	4533 Nov 05 18:40	15° <del>✕</del> 18'59	19.00505 AU
					4533 Nov 13 15:30	15° <del>✕</del> <del>✕</del>	
conjunction	4526 Apr 04 17:19	15° <del>Υ</del> 20'13	0°-44'-33	direct	4534 Jan 20 23:58	13° <del>✕</del> 20'32	
minimum elong	4526 Apr 04 17:19	15° <del>Υ</del> 20'13	0°44'33		4534 Mar 26 05:50	15° <del>✕</del>	
max. Earth dist.	4526 Apr 05 13:42	15° <del>Υ</del> 23'09	20.99410 AU				
retrograde	4526 Jul 23 06:33	19° <del>Υ</del> 21'34		conjunction	4534 May 06 14:09	17° <del>✕</del> 14'00	0°-30'-36
min. Earth dist.	4526 Oct 08 08:41	17° <del>Υ</del> 24'45	19.00243 AU	minimum elong	4534 May 06 14:09	17° <del>✕</del> 14'00	0°30'38
opposition	4526 Oct 09 04:20	17° <del>Υ</del> 22'47	0°-48'-40	max. Earth dist.	4534 May 07 08:52	17° <del>✕</del> 16'41	20.99811 AU
direct	4526 Dec 24 04:25	15° <del>Υ</del> 26'12		retrograde	4534 Aug 25 00:59	21° <del>✕</del> 16'33	
				opposition	4534 Nov 10 21:04	19° <del>✕</del> 17'04	0°-32'-24
conjunction	4527 Apr 08 22:47	19° <del>Υ</del> 20'13	0°-43'-29	min. Earth dist.	4534 Nov 10 03:55	19° <del>✕</del> 18'48	18.99067 AU
minimum elong	4527 Apr 08 22:47	19° <del>Υ</del> 20'13	0°43'31	direct	4535 Jan 25 04:08	17° <del>✕</del> 20'29	
max. Earth dist.	4527 Apr 09 20:05	19° <del>Υ</del> 23'17	21.00873 AU				
retrograde	4527 Jul 27 15:06	23° <del>Υ</del> 21'28		conjunction	4535 May 10 21:07	21° <del>✕</del> 14'16	0°-28'-5
opposition	4527 Oct 13 13:06	21° <del>Υ</del> 22'36	0°-47'-22	minimum elong	4535 May 10 21:07	21° <del>✕</del> 14'16	0°28'06
min. Earth dist.	4527 Oct 12 17:07	21° <del>Υ</del> 24'36	19.01455 AU	max. Earth dist.	4535 May 11 16:08	21° <del>✕</del> 16'59	20.98172 AU
direct	4527 Dec 28 12:21	19° <del>Υ</del> 26'02		retrograde	4535 Aug 29 10:43	25° <del>✕</del> 17'13	
				min. Earth dist.	4535 Nov 14 11:25	23° <del>✕</del> 19'26	18.97208 AU
conjunction	4528 Apr 12 03:59	23° <del>Υ</del> 19'41	0°-42'-13	opposition	4535 Nov 15 04:34	23° <del>✕</del> 17'42	0°-29'-32
minimum elong	4528 Apr 12 03:59	23° <del>Υ</del> 19'41	0°42'14	direct	4536 Jan 29 10:54	21° <del>✕</del> 21'04	
max. Earth dist.	4528 Apr 13 00:10	23° <del>Υ</del> 22'35	21.01860 AU				
retrograde	4528 Jul 30 22:26	27° <del>Υ</del> 20'56		conjunction	4536 May 14 04:23	25° <del>✕</del> 15'15	0°-25'-25
opposition	4528 Oct 16 21:47	25° <del>Υ</del> 21'56	0°-45'-51	minimum elong	4536 May 14 04:23	25° <del>✕</del> 15'15	0°25'27
min. Earth dist.	4528 Oct 16 02:36	25° <del>Υ</del> 23'51	19.02233 AU	max. Earth dist.	4536 May 14 21:32	25° <del>✕</del> 17'42	20.96098 AU

retrograde	4536 Sep 01 19:55	29°♄18'41		retrograde	4543 Oct 02 01:33	27°♄52'21	
opposition	4536 Nov 18 12:27	27°♄19'06	0°-26'-31	opposition	4543 Dec 17 22:08	25°♄51'33	0°-2'-12
min. Earth dist.	4536 Nov 17 21:12	27°♄20'39	18.94908 AU	min. Earth dist.	4543 Dec 17 14:19	25°♄52'22	18.66303 AU
direct	4537 Feb 01 15:00	25°♄22'23		direct	4544 Mar 01 16:43	23°♄53'05	
conjunction	4537 May 18 12:18	29°♄17'02	0°-22'-37	conjunction	4544 Jun 16 11:04	27°♄52'53	0°00'-21
minimum elong	4537 May 18 12:18	29°♄17'02	0°22'38	minimum elong	4544 Jun 16 11:04	27°♄52'53	0°00'23
max. Earth dist.	4537 May 19 05:21	29°♄19'28	20.93562 AU	behind sun begin	4544 Jun 16 04:23	27°♄51'57	
	4537 May 31 00:49	0°♄		behind sun end	4544 Jun 16 17:44	27°♄53'49	
retrograde	4537 Sep 06 06:48	3°♄20'58		max. Earth dist.	4544 Jun 16 18:07	27°♄53'53	20.63691 AU
opposition	4537 Nov 22 20:18	1°♄21'17	0°-23'-21		4544 Jul 24 17:28	0°♄	
min. Earth dist.	4537 Nov 22 05:19	1°♄22'49	18.92114 AU	asc. node	4544 Jul 25 15:50	0°♄02'47	
	4537 Dec 29 16:34	30°♄		retrograde	4544 Oct 05 13:06	2°♄01'04	
direct	4538 Feb 05 22:26	29°♄24'26		opposition	4544 Dec 21 07:19	0°♄00'05	0°01'30
	4538 Mar 15 05:44	0°♄		min. Earth dist.	4544 Dec 21 01:35	0°♄00'40	18.61024 AU
conjunction	4538 May 22 20:45	3°♄19'38	0°-19'-42		4544 Dec 21 08:03	30°♄	
minimum elong	4538 May 22 20:46	3°♄19'38	0°19'43	direct	4545 Mar 06 00:07	28°♄01'18	
max. Earth dist.	4538 May 23 11:30	3°♄21'44	20.90518 AU		4545 May 15 09:30	0°♄	
retrograde	4538 Sep 10 16:27	7°♄24'05		conjunction	4545 Jun 20 23:44	2°♄02'08	0°03'05
opposition	4538 Nov 27 04:17	5°♄24'16	0°-20'-3	minimum elong	4545 Jun 20 23:44	2°♄02'08	0°03'05
min. Earth dist.	4538 Nov 26 15:32	5°♄25'34	18.88819 AU	behind sun begin	4545 Jun 20 17:03	2°♄01'11	
direct	4539 Feb 10 03:27	3°♄27'13		behind sun end	4545 Jun 21 06:25	2°♄03'05	
conjunction	4539 May 27 05:54	7°♄23'01	0°-16'-40	max. Earth dist.	4545 Jun 21 06:15	2°♄03'03	20.58339 AU
minimum elong	4539 May 27 05:53	7°♄23'01	0°16'42	retrograde	4545 Oct 10 03:13	6°♄11'04	
max. Earth dist.	4539 May 27 20:09	7°♄25'03	20.86981 AU	opposition	4545 Dec 25 16:42	4°♄09'55	0°05'14
retrograde	4539 Sep 15 03:49	11°♄28'00		min. Earth dist.	4545 Dec 25 11:04	4°♄10'31	18.55593 AU
opposition	4539 Dec 01 12:19	9°♄28'01	0°-16'-39	direct	4546 Mar 10 09:50	2°♄10'51	
min. Earth dist.	4539 Nov 30 23:54	9°♄29'17	18.85033 AU	conjunction	4546 Jun 25 13:12	6°♄12'48	0°06'26
direct	4540 Feb 14 11:06	7°♄30'45		minimum elong	4546 Jun 25 13:11	6°♄12'48	0°06'26
conjunction	4540 May 30 15:11	11°♄27'11	0°-13'-32	behind sun begin	4546 Jun 25 06:52	6°♄11'54	
minimum elong	4540 May 30 15:12	11°♄27'11	0°13'33	behind sun end	4546 Jun 25 19:31	6°♄13'42	
behind sun begin	4540 May 30 11:33	11°♄26'40		max. Earth dist.	4546 Jun 25 17:44	6°♄13'26	20.52840 AU
behind sun end	4540 May 30 18:50	11°♄27'41		retrograde	4546 Oct 14 15:28	10°♄22'31	
max. Earth dist.	4540 May 31 03:14	11°♄28'54	20.82977 AU	opposition	4546 Dec 30 02:32	8°♄21'15	0°08'57
retrograde	4540 Sep 18 14:14	15°♄32'45		min. Earth dist.	4546 Dec 29 23:07	8°♄21'37	18.50038 AU
opposition	4540 Dec 04 20:40	13°♄32'34	0°-13'-9	direct	4547 Mar 14 17:48	6°♄21'53	
min. Earth dist.	4540 Dec 04 10:24	13°♄33'37	18.80824 AU	conjunction	4547 Jun 30 03:34	10°♄25'03	0°09'47
direct	4541 Feb 17 17:18	11°♄35'01		minimum elong	4547 Jun 30 03:33	10°♄25'03	0°09'46
conjunction	4541 Jun 04 01:20	15°♄32'10	0°-10'-20	behind sun begin	4547 Jun 29 22:05	10°♄24'16	
minimum elong	4541 Jun 04 01:20	15°♄32'10	0°10'23	behind sun end	4547 Jun 30 09:01	10°♄25'49	
behind sun begin	4541 Jun 03 20:05	15°♄31'26		max. Earth dist.	4547 Jun 30 07:15	10°♄25'34	20.47237 AU
behind sun end	4541 Jun 04 06:34	15°♄32'54		retrograde	4547 Oct 19 07:12	14°♄35'36	
max. Earth dist.	4541 Jun 04 12:58	15°♄33'50	20.78589 AU	opposition	4548 Jan 03 12:50	12°♄34'13	0°12'39
retrograde	4541 Sep 23 01:54	19°♄38'19		min. Earth dist.	4548 Jan 03 09:39	12°♄34'33	18.44373 AU
opposition	4541 Dec 09 04:53	17°♄37'56	0°-9'-33	direct	4548 Mar 18 04:45	10°♄34'35	
min. Earth dist.	4541 Dec 08 18:50	17°♄38'58	18.76259 AU	conjunction	4548 Jul 03 18:33	14°♄39'00	0°13'05
direct	4542 Feb 22 01:10	15°♄40'05		minimum elong	4548 Jul 03 18:33	14°♄39'00	0°13'04
conjunction	4542 Jun 08 11:56	19°♄38'02	0°-7'-4	behind sun begin	4548 Jul 03 14:37	14°♄38'27	
minimum elong	4542 Jun 08 11:55	19°♄38'02	0°07'06	behind sun end	4548 Jul 03 22:29	14°♄39'34	
behind sun begin	4542 Jun 08 05:45	19°♄37'10		max. Earth dist.	4548 Jul 03 20:24	14°♄39'16	20.41512 AU
behind sun end	4542 Jun 08 18:05	19°♄38'54		retrograde	4548 Oct 22 20:42	18°♄50'26	
max. Earth dist.	4542 Jun 08 21:25	19°♄39'23	20.73869 AU	opposition	4549 Jan 06 23:49	16°♄48'59	0°16'19
retrograde	4542 Sep 27 13:06	23°♄44'50		min. Earth dist.	4549 Jan 06 23:00	16°♄49'04	18.38591 AU
opposition	4542 Dec 13 13:31	21°♄44'13	0°-5'-54	direct	4549 Mar 22 13:38	14°♄49'04	
min. Earth dist.	4542 Dec 13 05:36	21°♄45'02	18.71401 AU	conjunction	4549 Jul 08 10:45	18°♄54'49	0°16'21
direct	4543 Feb 26 08:04	19°♄46'04		minimum elong	4549 Jul 08 10:45	18°♄54'49	0°16'21
conjunction	4543 Jun 12 23:12	23°♄44'54	0°-3'-46	max. Earth dist.	4549 Jul 08 11:17	18°♄54'53	20.35672 AU
minimum elong	4543 Jun 12 23:13	23°♄44'54	0°03'47	retrograde	4549 Oct 27 13:49	23°♄07'06	
behind sun begin	4543 Jun 12 16:36	23°♄43'58		opposition	4550 Jan 11 11:05	21°♄05'35	0°19'55
behind sun end	4543 Jun 13 05:50	23°♄45'50		min. Earth dist.	4550 Jan 11 10:54	21°♄05'36	18.32674 AU
max. Earth dist.	4543 Jun 13 08:16	23°♄46'12	20.68888 AU	direct	4550 Mar 27 02:21	19°♄05'22	



conjunction	4550 Jul 13 03:54	23° $\overline{5}$ 12'30	0°19'33	max. Earth dist.	4558 Aug 18 11:40	28° $\overline{0}$ 34'31	19.79602 AU
minimum elong	4550 Jul 13 03:54	23° $\overline{5}$ 12'30	0°19'33				
max. Earth dist.	4550 Jul 13 02:18	23° $\overline{5}$ 12'16	20.29664 AU	conjunction	4558 Aug 19 01:45	28° $\overline{0}$ 36'39	0°40'18
retrograde	4550 Nov 01 04:21	27° $\overline{5}$ 25'41		minimum elong	4558 Aug 19 01:45	28° $\overline{0}$ 36'39	0°40'17
opposition	4551 Jan 15 23:13	25° $\overline{5}$ 24'03	0°23'26		4558 Sep 11 08:40	0° $\overline{0}$	
min. Earth dist.	4551 Jan 16 01:36	25° $\overline{5}$ 23'48	18.26588 AU	retrograde	4558 Dec 07 07:58	2° $\overline{0}$ 56'04	
direct	4551 Mar 31 12:50	23° $\overline{5}$ 23'32		opposition	4559 Feb 19 20:13	0° $\overline{0}$ 53'22	0°45'48
				min. Earth dist.	4559 Feb 20 08:47	0° $\overline{0}$ 52'00	17.76800 AU
conjunction	4551 Jul 17 21:48	27° $\overline{5}$ 32'03	0°22'40		4559 Mar 13 01:05	30° $\overline{0}$ 49'44	
minimum elong	4551 Jul 17 21:48	27° $\overline{5}$ 32'03	0°22'40	direct	4559 May 05 17:45	28° $\overline{0}$ 49'44	
max. Earth dist.	4551 Jul 17 18:23	27° $\overline{5}$ 31'33	20.23497 AU		4559 Jun 27 03:45	0° $\overline{0}$	
	4551 Aug 31 05:44	0° $\overline{0}$		max. Earth dist.	4559 Aug 23 09:21	3° $\overline{0}$ 07'03	19.74065 AU
retrograde	4551 Nov 05 22:21	1° $\overline{0}$ 46'06					
	4552 Jan 14 08:07	30° $\overline{0}$ 09'30		conjunction	4559 Aug 24 01:29	3° $\overline{0}$ 09'30	0°42'00
opposition	4552 Jan 20 11:47	29° $\overline{0}$ 44'22	0°26'50	minimum elong	4559 Aug 24 01:29	3° $\overline{0}$ 09'30	0°42'00
min. Earth dist.	4552 Jan 20 14:53	29° $\overline{0}$ 44'02	18.20339 AU	retrograde	4559 Dec 12 05:50	7° $\overline{0}$ 29'36	
direct	4552 Apr 04 03:26	27° $\overline{0}$ 43'29		opposition	4560 Feb 24 13:41	5° $\overline{0}$ 26'50	0°47'33
	4552 Jun 18 17:37	0° $\overline{0}$		min. Earth dist.	4560 Feb 25 02:49	5° $\overline{0}$ 25'24	17.71448 AU
				direct	4560 May 09 13:02	3° $\overline{0}$ 22'53	
conjunction	4552 Jul 21 16:39	1° $\overline{0}$ 53'25	0°25'41	max. Earth dist.	4560 Aug 27 10:15	7° $\overline{0}$ 41'34	19.68887 AU
minimum elong	4552 Jul 21 16:39	1° $\overline{0}$ 53'25	0°25'40				
max. Earth dist.	4552 Jul 21 11:20	1° $\overline{0}$ 52'38	20.17169 AU	conjunction	4560 Aug 28 02:12	7° $\overline{0}$ 43'59	0°43'26
retrograde	4552 Nov 09 13:48	6° $\overline{0}$ 08'18		minimum elong	4560 Aug 28 02:11	7° $\overline{0}$ 43'59	0°43'25
opposition	4553 Jan 24 01:01	4° $\overline{0}$ 06'25	0°30'07	retrograde	4560 Dec 16 02:48	12° $\overline{0}$ 04'43	
min. Earth dist.	4553 Jan 24 06:34	4° $\overline{0}$ 05'50	18.13958 AU	opposition	4561 Feb 28 07:43	10° $\overline{0}$ 01'56	0°49'01
direct	4553 Apr 08 16:02	2° $\overline{0}$ 05'10		min. Earth dist.	4561 Feb 28 21:44	10° $\overline{0}$ 00'24	17.66457 AU
				direct	4561 May 14 07:33	7° $\overline{0}$ 57'43	
conjunction	4553 Jul 26 12:18	6° $\overline{0}$ 16'31	0°28'33	max. Earth dist.	4561 Sep 01 09:21	12° $\overline{0}$ 17'22	19.64089 AU
minimum elong	4553 Jul 26 12:17	6° $\overline{0}$ 16'31	0°28'33				
max. Earth dist.	4553 Jul 26 04:54	6° $\overline{0}$ 15'25	20.10753 AU	conjunction	4561 Sep 02 03:26	12° $\overline{0}$ 20'08	0°44'36
retrograde	4553 Nov 14 08:25	10° $\overline{0}$ 32'13		minimum elong	4561 Sep 02 03:26	12° $\overline{0}$ 20'08	0°44'36
opposition	4554 Jan 28 14:42	8° $\overline{0}$ 30'11	0°33'15	retrograde	4561 Dec 21 01:14	16° $\overline{0}$ 41'28	
min. Earth dist.	4554 Jan 28 21:00	8° $\overline{0}$ 29'31	18.07512 AU	opposition	4562 Mar 05 02:32	14° $\overline{0}$ 38'41	0°50'11
direct	4554 Apr 13 07:50	6° $\overline{0}$ 28'31		min. Earth dist.	4562 Mar 05 17:29	14° $\overline{0}$ 37'03	17.61849 AU
				direct	4562 May 19 04:18	12° $\overline{0}$ 34'14	
conjunction	4554 Jul 31 08:47	10° $\overline{0}$ 41'18	0°31'17	max. Earth dist.	4562 Sep 06 11:35	16° $\overline{0}$ 55'11	19.59650 AU
minimum elong	4554 Jul 31 08:47	10° $\overline{0}$ 41'18	0°31'18				
max. Earth dist.	4554 Jul 30 23:59	10° $\overline{0}$ 39'59	20.04286 AU	conjunction	4562 Sep 07 05:25	16° $\overline{0}$ 57'56	0°45'29
retrograde	4554 Nov 19 01:17	14° $\overline{0}$ 57'47		minimum elong	4562 Sep 07 05:25	16° $\overline{0}$ 57'56	0°45'30
opposition	4555 Feb 02 05:00	12° $\overline{0}$ 55'36	0°36'12	retrograde	4562 Dec 25 23:13	21° $\overline{0}$ 19'47	
min. Earth dist.	4555 Feb 02 13:26	12° $\overline{0}$ 54'42	18.01059 AU	opposition	4563 Mar 09 22:01	19° $\overline{0}$ 17'02	0°51'02
direct	4555 Apr 17 22:21	10° $\overline{0}$ 53'31		min. Earth dist.	4563 Mar 10 13:35	19° $\overline{0}$ 15'20	17.57583 AU
	4555 Aug 03 02:27	15° $\overline{0}$		direct	4563 May 24 01:29	17° $\overline{0}$ 12'24	
				max. Earth dist.	4563 Sep 11 11:54	21° $\overline{0}$ 34'11	19.55553 AU
conjunction	4555 Aug 05 05:54	15° $\overline{0}$ 07'43	0°33'51				
minimum elong	4555 Aug 05 05:54	15° $\overline{0}$ 07'43	0°33'50	conjunction	4563 Sep 12 07:49	21° $\overline{0}$ 37'15	0°46'06
max. Earth dist.	4555 Aug 04 19:00	15° $\overline{0}$ 06'05	19.97872 AU	minimum elong	4563 Sep 12 07:49	21° $\overline{0}$ 37'15	0°46'05
retrograde	4555 Nov 23 20:48	19° $\overline{0}$ 24'59		retrograde	4563 Dec 30 21:39	25° $\overline{0}$ 59'36	
opposition	4556 Feb 06 19:51	17° $\overline{0}$ 22'39	0°38'57	opposition	4564 Mar 13 18:14	23° $\overline{0}$ 56'52	0°51'33
min. Earth dist.	4556 Feb 07 04:53	17° $\overline{0}$ 21'41	17.94700 AU	min. Earth dist.	4564 Mar 14 11:02	23° $\overline{0}$ 55'02	17.53664 AU
direct	4556 Apr 21 15:10	15° $\overline{0}$ 20'09		direct	4564 May 27 23:30	21° $\overline{0}$ 52'01	
conjunction	4556 Aug 09 03:44	19° $\overline{0}$ 35'45	0°36'13	conjunction	4564 Sep 16 10:50	26° $\overline{0}$ 17'59	0°46'24
minimum elong	4556 Aug 09 03:44	19° $\overline{0}$ 35'45	0°36'13	minimum elong	4564 Sep 16 10:50	26° $\overline{0}$ 17'59	0°46'24
max. Earth dist.	4556 Aug 08 16:05	19° $\overline{0}$ 34'00	19.91569 AU	max. Earth dist.	4564 Sep 15 15:01	26° $\overline{0}$ 14'55	19.51786 AU
retrograde	4556 Nov 27 15:13	23° $\overline{0}$ 53'46			4564 Nov 26 01:30	0° $\overline{0}$	
opposition	4557 Feb 10 11:25	21° $\overline{0}$ 51'18	0°41'29	retrograde	4565 Jan 03 20:56	0° $\overline{0}$ 40'42	
min. Earth dist.	4557 Feb 10 22:08	21° $\overline{0}$ 50'08	17.88486 AU		4565 Feb 12 07:50	30° $\overline{0}$ 09'00	
direct	4557 Apr 26 06:54	19° $\overline{0}$ 48'23		opposition	4565 Mar 18 15:06	28° $\overline{0}$ 38'01	0°51'44
				min. Earth dist.	4565 Mar 19 08:10	28° $\overline{0}$ 36'09	17.50049 AU
conjunction	4557 Aug 14 02:20	24° $\overline{0}$ 05'24	0°38'22	direct	4565 Jun 01 23:16	26° $\overline{0}$ 32'58	
minimum elong	4557 Aug 14 02:20	24° $\overline{0}$ 05'24	0°38'22		4565 Sep 05 08:23	0° $\overline{0}$	
max. Earth dist.	4557 Aug 13 12:31	24° $\overline{0}$ 03'19	19.85462 AU				
retrograde	4557 Dec 02 12:05	28° $\overline{0}$ 24'08		conjunction	4565 Sep 21 14:10	0° $\overline{0}$ 59'54	0°46'23
opposition	4558 Feb 15 03:23	26° $\overline{0}$ 21'32	0°43'46	minimum elong	4565 Sep 21 14:10	0° $\overline{0}$ 59'54	0°46'23
min. Earth dist.	4558 Feb 15 14:44	26° $\overline{0}$ 20'18	17.82505 AU	max. Earth dist.	4565 Sep 20 16:33	0° $\overline{0}$ 56'33	19.48329 AU
direct	4558 May 01 00:53	24° $\overline{0}$ 18'14		retrograde	4566 Jan 08 19:19	5° $\overline{0}$ 22'56	

opposition	4566 Mar 23 12:33	3° <del>2</del> 20'16	0°51'34	opposition	4574 Apr 30 06:32	11° <del>1</del> 16'22	0°38'04
min. Earth dist.	4566 Mar 24 07:01	3° <del>2</del> 18'15	17.46770 AU	min. Earth dist.	4574 May 01 00:15	11° <del>1</del> 14'27	17.36937 AU
direct	4566 Jun 06 22:39	1° <del>2</del> 15'01		direct	4574 Jul 15 13:00	9° <del>1</del> 10'23	
conjunction	4566 Sep 26 17:50	5° <del>2</del> 42'50	0°46'04	conjunction	4574 Nov 04 19:42	13° <del>1</del> 40'49	0°32'47
minimum elong	4566 Sep 26 17:50	5° <del>2</del> 42'50	0°46'04	minimum elong	4574 Nov 04 19:42	13° <del>1</del> 40'49	0°32'48
max. Earth dist.	4566 Sep 25 20:16	5° <del>2</del> 39'29	19.45224 AU	max. Earth dist.	4574 Nov 03 23:43	13° <del>1</del> 37'41	19.37510 AU
retrograde	4567 Jan 13 19:22	10° <del>2</del> 06'05			4574 Nov 26 02:58	15° <del>1</del>	
opposition	4567 Mar 28 10:31	8° <del>2</del> 03'26	0°51'03	retrograde	4575 Feb 20 15:43	18° <del>1</del> 03'13	
min. Earth dist.	4567 Mar 29 04:43	8° <del>2</del> 01'27	17.43841 AU	opposition	4575 May 05 06:54	16° <del>1</del> 01'04	0°35'02
direct	4567 Jun 12 00:19	5° <del>2</del> 58'00		min. Earth dist.	4575 May 05 23:04	15° <del>1</del> 59'19	17.38277 AU
					4575 May 29 19:54	15° <del>1</del> 59'19	
conjunction	4567 Oct 01 21:23	10° <del>2</del> 26'33	0°45'27	direct	4575 Jul 20 15:45	13° <del>1</del> 55'12	
minimum elong	4567 Oct 01 21:23	10° <del>2</del> 26'33	0°45'27		4575 Sep 09 01:27	15° <del>1</del>	
max. Earth dist.	4567 Sep 30 22:52	10° <del>2</del> 23'03	19.42487 AU	conjunction	4575 Nov 09 21:36	18° <del>1</del> 25'26	0°29'58
retrograde	4568 Jan 18 17:44	14° <del>2</del> 49'59		minimum elong	4575 Nov 09 21:36	18° <del>1</del> 25'26	0°29'58
opposition	4568 Apr 01 09:01	12° <del>2</del> 47'20	0°50'11	max. Earth dist.	4575 Nov 09 03:44	18° <del>1</del> 22'38	19.39127 AU
min. Earth dist.	4568 Apr 02 04:30	12° <del>2</del> 45'12	17.41317 AU	retrograde	4576 Feb 25 14:35	22° <del>1</del> 47'25	
direct	4568 Jun 16 00:36	10° <del>2</del> 41'42		opposition	4576 May 09 07:31	20° <del>1</del> 45'29	0°31'46
max. Earth dist.	4568 Oct 05 02:40	15° <del>2</del> 07'24	19.40180 AU	min. Earth dist.	4576 May 09 23:33	20° <del>1</del> 43'44	17.40147 AU
conjunction	4568 Oct 06 01:11	15° <del>2</del> 10'55	0°44'30	direct	4576 Jul 24 18:55	18° <del>1</del> 39'47	
minimum elong	4568 Oct 06 01:11	15° <del>2</del> 10'55	0°44'30	conjunction	4576 Nov 13 23:02	23° <del>1</del> 09'39	0°26'57
retrograde	4569 Jan 22 18:14	19° <del>2</del> 34'23		minimum elong	4576 Nov 13 23:02	23° <del>1</del> 09'40	0°26'57
opposition	4569 Apr 06 07:39	17° <del>2</del> 31'45	0°48'58	max. Earth dist.	4576 Nov 13 04:58	23° <del>1</del> 06'50	19.41253 AU
min. Earth dist.	4569 Apr 07 02:28	17° <del>2</del> 29'42	17.39228 AU	retrograde	4577 Mar 01 12:56	27° <del>1</del> 31'12	
direct	4569 Jun 21 03:30	15° <del>2</del> 25'58		opposition	4577 May 14 08:04	25° <del>1</del> 29'26	0°28'18
max. Earth dist.	4569 Oct 10 06:20	19° <del>2</del> 52'10	19.38324 AU	min. Earth dist.	4577 May 14 22:53	25° <del>1</del> 27'50	17.42507 AU
conjunction	4569 Oct 11 04:57	19° <del>2</del> 55'41	0°43'15	direct	4577 Jul 29 22:09	23° <del>1</del> 23'54	
minimum elong	4569 Oct 11 04:57	19° <del>2</del> 55'41	0°43'16	max. Earth dist.	4577 Nov 18 08:11	27° <del>1</del> 50'50	19.43833 AU
retrograde	4570 Jan 27 16:51	24° <del>2</del> 19'09		conjunction	4577 Nov 19 00:08	27° <del>1</del> 53'20	0°23'45
opposition	4570 Apr 11 06:58	22° <del>2</del> 16'33	0°47'24	minimum elong	4577 Nov 19 00:08	27° <del>1</del> 53'20	0°23'46
min. Earth dist.	4570 Apr 12 02:47	22° <del>2</del> 14'23	17.37628 AU		4577 Dec 23 23:37	0° <del>2</del>	
direct	4570 Jun 26 04:22	20° <del>2</del> 10'37		retrograde	4578 Mar 06 11:22	2° <del>2</del> 14'20	
max. Earth dist.	4570 Oct 15 09:48	24° <del>2</del> 37'11	19.36989 AU	opposition	4578 May 19 08:53	0° <del>2</del> 12'45	0°24'39
conjunction	4570 Oct 16 08:20	24° <del>2</del> 40'43	0°41'42	min. Earth dist.	4578 May 19 23:09	0° <del>2</del> 11'13	17.45286 AU
minimum elong	4570 Oct 16 08:20	24° <del>2</del> 40'43	0°41'42		4578 May 24 07:47	30° <del>1</del>	
retrograde	4571 Feb 01 17:29	29° <del>2</del> 04'06		direct	4578 Aug 04 01:46	28° <del>1</del> 07'26	
opposition	4571 Apr 16 06:25	27° <del>2</del> 01'31	0°45'31		4578 Oct 10 17:51	0° <del>2</del>	
min. Earth dist.	4571 Apr 17 00:58	26° <del>2</del> 59'29	17.36560 AU	max. Earth dist.	4578 Nov 23 08:22	2° <del>2</del> 33'43	19.46815 AU
direct	4571 Jul 01 07:19	24° <del>2</del> 55'29		conjunction	4578 Nov 24 00:19	2° <del>2</del> 36'13	0°20'25
conjunction	4571 Oct 21 11:40	29° <del>2</del> 25'50	0°39'52	minimum elong	4578 Nov 24 00:19	2° <del>2</del> 36'13	0°20'24
minimum elong	4571 Oct 21 11:40	29° <del>2</del> 25'50	0°39'52	retrograde	4579 Mar 11 09:09	6° <del>2</del> 56'38	
max. Earth dist.	4571 Oct 20 14:06	29° <del>2</del> 22'28	19.36203 AU	opposition	4579 May 24 09:36	4° <del>2</del> 55'12	0°20'50
	4571 Oct 30 14:05	0° <del>2</del>		min. Earth dist.	4579 May 24 22:48	4° <del>2</del> 53'48	17.48461 AU
retrograde	4572 Feb 06 16:34	3° <del>2</del> 49'03		direct	4579 Aug 09 04:28	2° <del>2</del> 50'04	
opposition	4572 Apr 20 06:13	1° <del>2</del> 46'32	0°43'19	max. Earth dist.	4579 Nov 28 10:15	7° <del>2</del> 15'58	19.50168 AU
min. Earth dist.	4572 Apr 21 01:21	1° <del>2</del> 44'27	17.36076 AU	conjunction	4579 Nov 29 00:08	7° <del>2</del> 18'08	0°16'56
	4572 Jun 07 21:45	30° <del>1</del>		minimum elong	4579 Nov 29 00:08	7° <del>2</del> 18'08	0°16'57
direct	4572 Jul 05 08:26	29° <del>2</del> 40'26		retrograde	4580 Mar 15 07:02	11° <del>2</del> 37'52	
	4572 Aug 01 13:14	0° <del>2</del>		opposition	4580 May 28 10:01	9° <del>2</del> 36'37	0°16'53
conjunction	4572 Oct 25 14:39	4° <del>2</del> 10'56	0°37'45	min. Earth dist.	4580 May 28 22:15	9° <del>2</del> 35'18	17.51969 AU
minimum elong	4572 Oct 25 14:39	4° <del>2</del> 10'56	0°37'46	direct	4580 Aug 13 07:19	7° <del>2</del> 31'40	
max. Earth dist.	4572 Oct 24 17:02	4° <del>2</del> 07'33	19.36028 AU	conjunction	4580 Dec 02 23:09	11° <del>2</del> 58'52	0°13'21
retrograde	4573 Feb 10 17:00	8° <del>2</del> 33'57		minimum elong	4580 Dec 02 23:09	11° <del>2</del> 58'52	0°13'22
opposition	4573 Apr 25 06:12	6° <del>2</del> 31'30	0°40'50	behind sun begin	4580 Dec 02 19:20	11° <del>2</del> 58'17	
min. Earth dist.	4573 Apr 25 23:46	6° <del>2</del> 29'35	17.36201 AU	behind sun end	4580 Dec 03 02:58	11° <del>2</del> 59'27	
direct	4573 Jul 10 11:10	4° <del>2</del> 25'25		max. Earth dist.	4580 Dec 02 09:29	11° <del>2</del> 56'45	19.53844 AU
conjunction	4573 Oct 30 17:26	8° <del>2</del> 55'58	0°35'23	retrograde	4581 Mar 20 04:09	16° <del>2</del> 17'54	
minimum elong	4573 Oct 30 17:26	8° <del>2</del> 55'58	0°35'23	opposition	4581 Jun 02 10:24	14° <del>2</del> 16'46	0°12'51
max. Earth dist.	4573 Oct 29 21:31	8° <del>2</del> 52'50	19.36459 AU	min. Earth dist.	4581 Jun 02 21:49	14° <del>2</del> 15'33	17.55807 AU
retrograde	4574 Feb 15 16:04	13° <del>2</del> 18'40		direct	4581 Aug 18 08:53	12° <del>2</del> 12'00	

conjunction	4581 Dec 07 21:20	16° $\mathring{A}$ 38'16	0°09'42	behind sun end	4588 Jan 04 19:43	14° $\mathring{C}$ 00'22	
minimum elong	4581 Dec 07 21:21	16° $\mathring{A}$ 38'16	0°09'43	max. Earth dist.	4588 Jan 04 13:29	13° $\mathring{C}$ 59'26	19.88480 AU
behind sun begin	4581 Dec 07 15:53	16° $\mathring{A}$ 37'26		retrograde	4588 Apr 20 19:16	18° $\mathring{C}$ 12'55	
behind sun end	4581 Dec 08 02:49	16° $\mathring{A}$ 39'06		opposition	4588 Jul 05 01:26	16° $\mathring{C}$ 12'39	0°-15'-37
max. Earth dist.	4581 Dec 07 09:41	16° $\mathring{A}$ 36'27	19.57837 AU	min. Earth dist.	4588 Jul 05 01:18	16° $\mathring{C}$ 12'40	17.91518 AU
retrograde	4582 Mar 25 01:28	20° $\mathring{A}$ 56'31		direct	4588 Sep 20 08:06	14° $\mathring{C}$ 09'47	
opposition	4582 Jun 07 10:28	18° $\mathring{A}$ 55'31	0°08'44				
min. Earth dist.	4582 Jun 07 20:15	18° $\mathring{A}$ 54'28	17.59938 AU	conjunction	4589 Jan 08 07:21	18° $\mathring{C}$ 27'23	0°-15'-48
direct	4582 Aug 23 11:07	16° $\mathring{A}$ 50'57		minimum elong	4589 Jan 08 07:21	18° $\mathring{C}$ 27'23	0°15'49
				behind sun begin	4589 Jan 08 05:53	18° $\mathring{C}$ 27'10	
conjunction	4582 Dec 12 18:39	21° $\mathring{A}$ 16'08	0°06'01	behind sun end	4589 Jan 08 08:48	18° $\mathring{C}$ 27'36	
minimum elong	4582 Dec 12 18:39	21° $\mathring{A}$ 16'08	0°06'02	max. Earth dist.	4589 Jan 08 07:45	18° $\mathring{C}$ 27'27	19.94646 AU
behind sun begin	4582 Dec 12 12:20	21° $\mathring{A}$ 15'11		retrograde	4589 Apr 25 10:42	22° $\mathring{C}$ 39'47	
behind sun end	4582 Dec 13 00:58	21° $\mathring{A}$ 17'06		opposition	4589 Jul 09 22:22	20° $\mathring{C}$ 39'43	0°-19'-23
max. Earth dist.	4582 Dec 12 07:50	21° $\mathring{A}$ 14'28	19.62127 AU	min. Earth dist.	4589 Jul 09 21:37	20° $\mathring{C}$ 39'47	17.97786 AU
retrograde	4583 Mar 29 21:13	25° $\mathring{A}$ 33'35		direct	4589 Sep 25 03:47	18° $\mathring{C}$ 37'16	
opposition	4583 Jun 12 10:08	23° $\mathring{A}$ 32'40	0°04'36				
min. Earth dist.	4583 Jun 12 19:12	23° $\mathring{A}$ 31'42	17.64391 AU	conjunction	4590 Jan 12 22:20	22° $\mathring{C}$ 53'29	0°-19'-8
direct	4583 Aug 28 11:15	21° $\mathring{A}$ 28'18		minimum elong	4590 Jan 12 22:20	22° $\mathring{C}$ 53'29	0°19'08
				max. Earth dist.	4590 Jan 12 23:57	22° $\mathring{C}$ 53'44	20.00998 AU
conjunction	4583 Dec 17 15:02	25° $\mathring{A}$ 52'21	0°02'18	retrograde	4590 Apr 30 04:36	27° $\mathring{C}$ 05'04	
minimum elong	4583 Dec 17 15:02	25° $\mathring{A}$ 52'21	0°02'18	opposition	4590 Jul 14 18:36	25° $\mathring{C}$ 05'12	0°-23'-1
behind sun begin	4583 Dec 17 08:25	25° $\mathring{A}$ 51'21		min. Earth dist.	4590 Jul 14 15:14	25° $\mathring{C}$ 05'33	18.04193 AU
behind sun end	4583 Dec 17 21:39	25° $\mathring{A}$ 53'21		direct	4590 Sep 30 01:45	23° $\mathring{C}$ 03'09	
max. Earth dist.	4583 Dec 17 06:10	25° $\mathring{A}$ 50'59	19.66740 AU				
	4584 Mar 15 15:44	0° $\mathring{C}$		conjunction	4591 Jan 17 12:45	27° $\mathring{C}$ 18'01	0°-22'-20
retrograde	4584 Apr 02 17:44	0° $\mathring{C}$ 08'57		minimum elong	4591 Jan 17 12:45	27° $\mathring{C}$ 18'01	0°22'21
	4584 Apr 21 00:12	30° $\mathring{R}$ $\mathring{A}$		max. Earth dist.	4591 Jan 17 16:39	27° $\mathring{C}$ 18'36	20.07438 AU
opposition	4584 Jun 16 09:19	28° $\mathring{A}$ 08'07	0°00'27		4591 Mar 06 11:58	0° $\approx$	
min. Earth dist.	4584 Jun 16 16:13	28° $\mathring{A}$ 07'24	17.69147 AU	retrograde	4591 May 04 18:37	1° $\approx$ 28'47	
desc. node	4584 Jul 26 08:42	26° $\mathring{A}$ 37'51			4591 Jul 06 22:35	30° $\mathring{R}$ $\mathring{C}$	
direct	4584 Sep 01 12:54	26° $\mathring{A}$ 03'59		opposition	4591 Jul 19 14:19	29° $\mathring{C}$ 29'06	0°-26'-29
	4584 Dec 14 05:35	0° $\mathring{C}$		min. Earth dist.	4591 Jul 19 10:34	29° $\mathring{C}$ 29'29	18.10662 AU
				direct	4591 Oct 04 20:10	27° $\mathring{C}$ 27'28	
conjunction	4584 Dec 21 10:28	0° $\mathring{C}$ 26'48	0°-1'-31		4591 Dec 24 16:02	0° $\approx$	
minimum elong	4584 Dec 21 10:28	0° $\mathring{C}$ 26'48	0°01'32				
behind sun begin	4584 Dec 21 03:51	0° $\mathring{C}$ 25'48		conjunction	4592 Jan 22 02:19	1° $\approx$ 40'56	0°-25'-24
behind sun end	4584 Dec 21 17:05	0° $\mathring{C}$ 27'48		minimum elong	4592 Jan 22 02:19	1° $\approx$ 40'56	0°25'24
max. Earth dist.	4584 Dec 21 03:08	0° $\mathring{C}$ 25'41	19.71661 AU	max. Earth dist.	4592 Jan 22 06:54	1° $\approx$ 41'38	20.13912 AU
retrograde	4585 Apr 07 11:40	4° $\mathring{C}$ 42'33		retrograde	4592 May 08 11:11	5° $\approx$ 50'55	
opposition	4585 Jun 21 08:09	2° $\mathring{C}$ 41'49	0°-3'-40	opposition	4592 Jul 23 09:24	3° $\approx$ 51'24	0°-29'-47
min. Earth dist.	4585 Jun 21 14:16	2° $\mathring{C}$ 41'10	17.74246 AU	min. Earth dist.	4592 Jul 23 03:20	3° $\approx$ 52'02	18.17120 AU
direct	4585 Sep 06 11:34	0° $\mathring{C}$ 37'56		direct	4592 Oct 08 15:58	1° $\approx$ 50'09	
conjunction	4585 Dec 26 05:01	4° $\mathring{C}$ 59'29	0°-5'-13	conjunction	4593 Jan 25 15:10	6° $\approx$ 02'15	0°-28'-17
minimum elong	4585 Dec 26 05:00	4° $\mathring{C}$ 59'29	0°05'14	minimum elong	4593 Jan 25 15:10	6° $\approx$ 02'15	0°28'18
behind sun begin	4585 Dec 25 22:36	4° $\mathring{C}$ 58'31		max. Earth dist.	4593 Jan 25 21:58	6° $\approx$ 03'16	20.20327 AU
behind sun end	4585 Dec 26 11:24	5° $\mathring{C}$ 00'27		retrograde	4593 May 13 00:15	10° $\approx$ 11'26	
max. Earth dist.	4585 Dec 25 23:34	4° $\mathring{C}$ 58'40	19.76938 AU	opposition	4593 Jul 28 04:06	8° $\approx$ 12'04	0°-32'-54
retrograde	4586 Apr 12 07:39	9° $\mathring{C}$ 14'22		min. Earth dist.	4593 Jul 27 21:41	8° $\approx$ 12'43	18.23492 AU
opposition	4586 Jun 26 06:28	7° $\mathring{C}$ 13'46	0°-7'-44	direct	4593 Oct 13 09:23	6° $\approx$ 11'12	
min. Earth dist.	4586 Jun 26 09:50	7° $\mathring{C}$ 13'25	17.79688 AU				
direct	4586 Sep 11 11:55	5° $\mathring{C}$ 10'10		conjunction	4594 Jan 30 03:14	10° $\approx$ 21'52	0°-31'00
				minimum elong	4594 Jan 30 03:13	10° $\approx$ 21'52	0°31'01
conjunction	4586 Dec 30 22:32	9° $\mathring{C}$ 30'25	0°-8'-50	max. Earth dist.	4594 Jan 30 10:23	10° $\approx$ 22'57	20.26643 AU
minimum elong	4586 Dec 30 22:33	9° $\mathring{C}$ 30'25	0°08'50	retrograde	4594 May 17 15:19	14° $\approx$ 30'18	
behind sun begin	4586 Dec 30 16:51	9° $\mathring{C}$ 29'34		opposition	4594 Aug 01 22:03	12° $\approx$ 31'03	0°-35'-48
behind sun end	4586 Dec 31 04:15	9° $\mathring{C}$ 31'17		min. Earth dist.	4594 Aug 01 13:30	12° $\approx$ 31'55	18.29740 AU
max. Earth dist.	4586 Dec 30 19:12	9° $\mathring{C}$ 29'56	19.82549 AU	direct	4594 Oct 18 02:47	10° $\approx$ 30'30	
retrograde	4587 Apr 17 00:14	13° $\mathring{C}$ 44'28					
opposition	4587 Jul 01 04:22	11° $\mathring{C}$ 44'01	0°-11'-43	conjunction	4595 Feb 03 14:39	14° $\approx$ 39'48	0°-33'-32
min. Earth dist.	4587 Jul 01 06:56	11° $\mathring{C}$ 43'45	17.85465 AU	minimum elong	4595 Feb 03 14:39	14° $\approx$ 39'48	0°33'32
direct	4587 Sep 16 09:01	9° $\mathring{C}$ 40'47		max. Earth dist.	4595 Feb 03 23:56	14° $\approx$ 41'11	20.32796 AU
					4595 Feb 09 04:53	15° $\approx$	
conjunction	4588 Jan 04 15:20	13° $\mathring{C}$ 59'42	0°-12'-22	retrograde	4595 May 22 03:40	18° $\approx$ 47'27	
minimum elong	4588 Jan 04 15:20	13° $\mathring{C}$ 59'42	0°12'22	opposition	4595 Aug 06 15:26	16° $\approx$ 48'16	0°-38'-29
behind sun begin	4588 Jan 04 10:56	13° $\mathring{C}$ 59'03		min. Earth dist.	4595 Aug 06 06:33	16° $\approx$ 49'11	18.35801 AU

	4595 Sep 30 19:12	15°R	
direct	4595 Oct 22 18:54	14°48'03	
	4595 Nov 13 09:40	15°	
conjunction	4596 Feb 08 01:14	18°55'57	0°-35'-51
minimum elong	4596 Feb 08 01:14	18°55'57	0°35'53
max. Earth dist.	4596 Feb 08 10:38	18°57'21	20.38764 AU
retrograde	4596 May 25 17:20	23°02'51	
opposition	4596 Aug 10 07:56	21°03'43	0°-40'-56
min. Earth dist.	4596 Aug 09 21:11	21°04'48	18.41677 AU
direct	4596 Oct 26 10:27	19°03'45	
conjunction	4597 Feb 11 11:13	23°10'18	0°-37'-58
minimum elong	4597 Feb 11 11:13	23°10'18	0°37'58
max. Earth dist.	4597 Feb 11 22:53	23°12'02	20.44543 AU
retrograde	4597 May 30 04:33	27°16'27	
opposition	4597 Aug 15 00:00	25°17'21	0°-43'-9
min. Earth dist.	4597 Aug 14 12:38	25°18'30	18.47373 AU
direct	4597 Oct 31 01:07	23°17'39	
conjunction	4598 Feb 15 20:11	27°22'51	0°-39'-51
minimum elong	4598 Feb 15 20:11	27°22'51	0°39'53
max. Earth dist.	4598 Feb 16 08:10	27°24'38	20.50165 AU
	4598 Apr 04 11:32	0°	
retrograde	4598 Jun 03 17:25	1°28'20	
	4598 Aug 06 19:15	30°R	
opposition	4598 Aug 19 15:15	29°29'13	0°-45'-6
min. Earth dist.	4598 Aug 19 02:03	29°30'33	18.52934 AU
direct	4598 Nov 04 15:14	27°29'46	
	4599 Jan 24 05:46	0°	
conjunction	4599 Feb 20 04:48	1°33'41	0°-41'-31
minimum elong	4599 Feb 20 04:48	1°33'41	0°41'31
max. Earth dist.	4599 Feb 20 19:10	1°35'49	20.55649 AU
retrograde	4599 Jun 08 03:40	5°38'30	
opposition	4599 Aug 24 05:41	3°39'25	0°-46'-48
min. Earth dist.	4599 Aug 23 15:43	3°40'50	18.58357 AU
direct	4599 Nov 09 04:00	1°40'16	
conjunction	4600 Feb 24 12:40	5°42'58	0°-42'-57
minimum elong	4600 Feb 24 12:40	5°42'58	0°42'58
max. Earth dist.	4600 Feb 25 03:13	5°45'07	20.61011 AU
retrograde	4600 Jun 12 15:31	9°47'11	
opposition	4600 Aug 28 19:37	7°48'09	0°-48'-15
min. Earth dist.	4600 Aug 28 04:01	7°49'43	18.63662 AU
direct	4600 Nov 13 16:33	5°49'16	

conjunction	4600 Feb 24 12:40	5° <del>✕</del> 42'58	0°-42'-57	direct	4607 Dec 13 13:43	4° <del>Υ</del> 23'04	
minimum elong	4600 Feb 24 12:40	5° <del>✕</del> 42'58	0°42'58				
max. Earth dist.	4600 Feb 25 03:13	5° <del>✕</del> 45'07	20.61011 AU	conjunction	4608 Mar 28 15:03	8° <del>Υ</del> 18'40	0°-46'-4
retrograde	4600 Jun 12 15:31	9° <del>✕</del> 47'11		minimum elong	4608 Mar 28 15:03	8° <del>Υ</del> 18'40	0°46'05
opposition	4600 Aug 28 19:37	7° <del>✕</del> 48'09	0°-48'-15	max. Earth dist.	4608 Mar 29 11:01	8° <del>Υ</del> 21'34	20.94995 AU
min. Earth dist.	4600 Aug 28 04:01	7° <del>✕</del> 49'43	18.63662 AU	retrograde	4608 Jul 15 22:09	12° <del>Υ</del> 20'12	
direct	4600 Nov 13 16:33	5° <del>✕</del> 49'16		opposition	4608 Oct 01 16:53	10° <del>Υ</del> 21'34	0°-50'-35
				min. Earth dist.	4608 Sep 30 21:16	10° <del>Υ</del> 23'31	18.96289 AU
conjunction	4601 Feb 28 20:04	9° <del>✕</del> 50'50	0°-44'-9	direct	4608 Dec 16 20:50	8° <del>Υ</del> 24'46	
minimum elong	4601 Feb 28 20:03	9° <del>✕</del> 50'50	0°44'10				
max. Earth dist.	4601 Mar 01 12:57	9° <del>✕</del> 53'19	20.66233 AU	conjunction	4609 Apr 01 20:30	12° <del>Υ</del> 19'47	0°-45'-25
retrograde	4601 Jun 17 01:30	13° <del>✕</del> 54'32		minimum elong	4609 Apr 01 20:30	12° <del>Υ</del> 19'47	0°45'26
opposition	4601 Sep 02 09:03	11° <del>✕</del> 55'33	0°-49'-26	max. Earth dist.	4609 Apr 02 17:35	12° <del>Υ</del> 22'50	20.97373 AU
min. Earth dist.	4601 Sep 01 16:34	11° <del>✕</del> 57'13	18.68802 AU	retrograde	4609 Jul 20 06:19	16° <del>Υ</del> 21'10	
direct	4601 Nov 18 03:59	9° <del>✕</del> 56'59		min. Earth dist.	4609 Oct 05 06:43	14° <del>Υ</del> 24'28	18.98408 AU
				opposition	4609 Oct 06 02:38	14° <del>Υ</del> 22'28	0°-49'-44
conjunction	4602 Mar 05 02:57	13° <del>✕</del> 57'28	0°-45'-7	direct	4609 Dec 21 06:01	12° <del>Υ</del> 25'47	
minimum elong	4602 Mar 05 02:57	13° <del>✕</del> 57'28	0°45'07				
max. Earth dist.	4602 Mar 05 19:53	13° <del>✕</del> 59'57	20.71287 AU	conjunction	4610 Apr 06 01:44	16° <del>Υ</del> 20'16	0°-44'-33
retrograde	4602 Jun 21 12:25	18° <del>✕</del> 00'43		minimum elong	4610 Apr 06 01:44	16° <del>Υ</del> 20'16	0°44'34
opposition	4602 Sep 06 21:47	16° <del>✕</del> 01'48	0°-50'-22	max. Earth dist.	4610 Apr 06 21:45	16° <del>Υ</del> 23'09	20.99258 AU
min. Earth dist.	4602 Sep 06 04:09	16° <del>✕</del> 03'34	18.73762 AU	retrograde	4610 Jul 24 15:21	20° <del>Υ</del> 21'33	
direct	4602 Nov 22 14:43	14° <del>✕</del> 03'32		opposition	4610 Oct 10 11:50	18° <del>Υ</del> 22'45	0°-48'-39
				min. Earth dist.	4610 Oct 09 16:22	18° <del>Υ</del> 24'41	19.00068 AU
conjunction	4603 Mar 09 09:37	18° <del>✕</del> 03'02	0°-45'-51	direct	4610 Dec 25 12:22	16° <del>Υ</del> 26'06	
minimum elong	4603 Mar 09 09:37	18° <del>✕</del> 03'02	0°45'53				
max. Earth dist.	4603 Mar 10 04:36	18° <del>✕</del> 05'49	20.76120 AU	conjunction	4611 Apr 10 07:02	20° <del>Υ</del> 20'09	0°-43'-28
retrograde	4603 Jun 25 22:15	22° <del>✕</del> 05'51		minimum elong	4611 Apr 10 07:02	20° <del>Υ</del> 20'09	0°43'28
opposition	4603 Sep 11 10:04	20° <del>✕</del> 07'02	0°-51'-2	max. Earth dist.	4611 Apr 11 04:11	20° <del>Υ</del> 23'12	21.00695 AU
min. Earth dist.	4603 Sep 10 15:46	20° <del>✕</del> 08'52	18.78458 AU	retrograde	4611 Jul 28 22:31	24° <del>Υ</del> 21'21	
direct	4603 Nov 27 01:12	18° <del>✕</del> 09'05		opposition	4611 Oct 14 20:41	22° <del>Υ</del> 22'28	0°-47'-19
				min. Earth dist.	4611 Oct 14 00:48	22° <del>Υ</del> 24'27	19.01292 AU
conjunction	4604 Mar 12 15:46	22° <del>✕</del> 07'39	0°-46'-21	direct	4611 Dec 29 20:23	20° <del>Υ</del> 25'52	
minimum elong	4604 Mar 12 15:46	22° <del>✕</del> 07'39	0°46'22				
max. Earth dist.	4604 Mar 13 10:28	22° <del>✕</del> 10'23	20.80672 AU	conjunction	4612 Apr 13 12:00	24° <del>Υ</del> 19'32	0°-42'-10
retrograde	4604 Jun 29 08:22	26° <del>✕</del> 10'08		minimum elong	4612 Apr 13 12:00	24° <del>Υ</del> 19'32	0°42'12
opposition	4604 Sep 14 21:54	24° <del>✕</del> 11'23	0°-51'-27	max. Earth dist.	4612 Apr 14 08:11	24° <del>Υ</del> 22'26	21.01726 AU
min. Earth dist.	4604 Sep 14 02:54	24° <del>✕</del> 13'17	18.82859 AU	retrograde	4612 Aug 01 07:04	28° <del>Υ</del> 20'46	
direct	4604 Nov 30 10:22	22° <del>✕</del> 13'44		min. Earth dist.	4612 Oct 17 09:52	26° <del>Υ</del> 23'42	19.02146 AU
				opposition	4612 Oct 18 05:20	26° <del>Υ</del> 21'45	0°-45'-46
conjunction	4605 Mar 16 21:55	26° <del>✕</del> 11'27	0°-46'-38	direct	4613 Jan 02 02:10	24° <del>Υ</del> 25'11	
minimum elong	4605 Mar 16 21:55	26° <del>✕</del> 11'27	0°46'40				
max. Earth dist.	4605 Mar 17 18:22	26° <del>✕</del> 14'26	20.84894 AU	conjunction	4613 Apr 17 17:17	28° <del>Υ</del> 18'36	0°-40'-40
	4605 Jun 10 06:05	0° <del>Υ</del>		minimum elong	4613 Apr 17 17:17	28° <del>Υ</del> 18'36	0°40'41
retrograde	4605 Jul 03 18:05	0° <del>Υ</del> 13'37		max. Earth dist.	4613 Apr 18 14:38	28° <del>Υ</del> 21'39	21.02400 AU
	4605 Jul 27 14:08	30° <del>℞</del>			4613 May 18 01:06	0° <del>♄</del>	
opposition	4605 Sep 19 09:18	28° <del>✕</del> 14'57	0°-51'-37	retrograde	4613 Aug 05 14:29	2° <del>♄</del> 19'52	
min. Earth dist.	4605 Sep 18 13:50	28° <del>✕</del> 16'54	18.86893 AU	opposition	4613 Oct 22 13:33	0° <del>♄</del> 20'47	0°-44'00
direct	4605 Dec 04 20:14	26° <del>✕</del> 17'35		min. Earth dist.	4613 Oct 21 17:37	0° <del>♄</del> 22'46	19.02641 AU
	4606 Mar 16 23:55	0° <del>Υ</del>			4613 Oct 31 05:56	30° <del>℞</del>	
				direct	4614 Jan 06 09:06	28° <del>Υ</del> 24'14	
conjunction	4606 Mar 21 03:38	0° <del>Υ</del> 14'31	0°-46'-40		4614 Mar 10 09:42	0° <del>♄</del>	
minimum elong	4606 Mar 21 03:38	0° <del>Υ</del> 14'31	0°46'41				
max. Earth dist.	4606 Mar 21 23:26	0° <del>Υ</del> 17'23	20.88727 AU	conjunction	4614 Apr 21 22:29	2° <del>♄</del> 17'27	0°-38'-58
retrograde	4606 Jul 08 03:45	4° <del>Υ</del> 16'27		minimum elong	4614 Apr 21 22:29	2° <del>♄</del> 17'27	0°39'00
opposition	4606 Sep 23 20:19	2° <del>Υ</del> 17'48	0°-51'-31	max. Earth dist.	4614 Apr 22 18:43	2° <del>♄</del> 20'21	21.02726 AU
min. Earth dist.	4606 Sep 23 00:42	2° <del>Υ</del> 19'46	18.90517 AU	retrograde	4614 Aug 09 22:36	6° <del>♄</del> 18'51	
direct	4606 Dec 09 04:11	0° <del>Υ</del> 20'40		opposition	4614 Oct 26 21:40	4° <del>♄</del> 19'41	0°-42'-1
				min. Earth dist.	4614 Oct 26 02:27	4° <del>♄</del> 21'37	19.02798 AU
conjunction	4607 Mar 25 09:31	4° <del>Υ</del> 16'55	0°-46'-29	direct	4615 Jan 10 14:07	2° <del>♄</del> 23'09	
minimum elong	4607 Mar 25 09:31	4° <del>Υ</del> 16'55	0°46'30				
max. Earth dist.	4607 Mar 26 06:34	4° <del>Υ</del> 19'58	20.92109 AU	conjunction	4615 Apr 26 04:04	6° <del>♄</del> 16'18	0°-37'-5
retrograde	4607 Jul 12 12:50	8° <del>Υ</del> 18'37		minimum elong	4615 Apr 26 04:04	6° <del>♄</del> 16'18	0°37'07
min. Earth dist.	4607 Sep 27 10:50	6° <del>Υ</del> 21'59	18.93651 AU	max. Earth dist.	4615 Apr 27 01:12	6° <del>♄</del> 19'20	21.02703 AU
opposition	4607 Sep 28 06:41	6° <del>Υ</del> 20'00	0°-51'-11	retrograde	4615 Aug 14 06:51	10° <del>♄</del> 17'52	

min. Earth dist.	4615 Oct 30 09:52	8°♄20'36	19.02588 AU	minimum elong	4623 May 28 13:45	8°♄22'44	0°16'24
opposition	4615 Oct 31 05:23	8°♄18'39	0°-39'-51	max. Earth dist.	4623 May 29 03:48	8°♄24'44	20.87214 AU
direct	4616 Jan 14 20:39	6°♄22'08		retrograde	4623 Sep 16 11:01	12°♄27'35	
				opposition	4623 Dec 02 20:09	10°♄27'34	0°-16'-20
conjunction	4616 Apr 29 09:41	10°♄15'18	0°-35'-2	min. Earth dist.	4623 Dec 02 07:50	10°♄28'50	18.85229 AU
minimum elong	4616 Apr 29 09:41	10°♄15'18	0°35'03	direct	4624 Feb 15 20:11	8°♄30'15	
max. Earth dist.	4616 Apr 30 05:29	10°♄18'08	21.02322 AU				
retrograde	4616 Aug 17 14:56	14°♄17'07		conjunction	4624 May 31 23:03	12°♄26'35	0°-13'-15
opposition	4616 Nov 03 13:16	12°♄17'50	0°-37'-28	minimum elong	4624 May 31 23:04	12°♄26'35	0°13'17
min. Earth dist.	4616 Nov 02 18:45	12°♄19'42	19.02024 AU	behind sun begin	4624 May 31 19:14	12°♄26'03	
direct	4617 Jan 18 01:09	10°♄21'20		behind sun end	4624 Jun 01 02:53	12°♄27'07	
				max. Earth dist.	4624 Jun 01 10:55	12°♄28'16	20.83152 AU
conjunction	4617 May 03 15:43	14°♄14'36	0°-32'-48	retrograde	4624 Sep 19 20:54	16°♄32'02	
minimum elong	4617 May 03 15:43	14°♄14'36	0°32'50	opposition	4624 Dec 06 04:24	14°♄31'48	0°-12'-48
max. Earth dist.	4617 May 04 12:14	14°♄17'32	21.01567 AU	min. Earth dist.	4624 Dec 05 18:05	14°♄32'52	18.80990 AU
	4617 May 16 22:03	15°♄		direct	4625 Feb 19 01:34	12°♄34'14	
retrograde	4617 Aug 22 00:09	18°♄16'43					
opposition	4617 Nov 07 20:58	16°♄17'23	0°-34'-55	conjunction	4625 Jun 05 09:02	16°♄31'18	0°-10'-2
min. Earth dist.	4617 Nov 07 02:23	16°♄19'15	19.01058 AU	minimum elong	4625 Jun 05 09:02	16°♄31'18	0°10'03
	4617 Dec 12 20:11	15°♄		behind sun begin	4625 Jun 05 03:41	16°♄30'33	
direct	4618 Jan 22 07:31	14°♄20'53		behind sun end	4625 Jun 05 14:24	16°♄32'03	
	4618 Mar 02 14:16	15°♄		max. Earth dist.	4625 Jun 05 20:48	16°♄32'59	20.78753 AU
				retrograde	4625 Sep 24 09:06	20°♄37'22	
conjunction	4618 May 07 22:07	18°♄14'20	0°-30'-25	opposition	4625 Dec 10 12:38	18°♄36'57	0°-9'-13
minimum elong	4618 May 07 22:08	18°♄14'20	0°30'26	min. Earth dist.	4625 Dec 10 02:31	18°♄38'00	18.76431 AU
max. Earth dist.	4618 May 08 16:54	18°♄17'01	21.00397 AU	direct	4626 Feb 23 10:04	16°♄39'06	
retrograde	4618 Aug 26 08:44	22°♄16'49					
min. Earth dist.	4618 Nov 11 11:34	20°♄19'09	18.99671 AU	conjunction	4626 Jun 09 19:34	20°♄37'00	0°-6'-46
opposition	4618 Nov 12 04:38	20°♄17'26	0°-32'-12	minimum elong	4626 Jun 09 19:35	20°♄37'00	0°06'47
direct	4619 Jan 26 12:11	18°♄20'53		behind sun begin	4626 Jun 09 13:21	20°♄36'07	
				behind sun end	4626 Jun 10 01:48	20°♄37'52	
conjunction	4619 May 12 05:10	22°♄14'39	0°-27'-52	max. Earth dist.	4626 Jun 10 05:09	20°♄38'22	20.74058 AU
minimum elong	4619 May 12 05:10	22°♄14'39	0°27'55	retrograde	4626 Sep 28 19:33	24°♄43'44	
max. Earth dist.	4619 May 13 00:08	22°♄17'22	20.98778 AU	opposition	4626 Dec 14 21:07	22°♄43'09	0°-5'-33
retrograde	4619 Aug 30 18:39	26°♄17'32		min. Earth dist.	4626 Dec 14 13:04	22°♄43'58	18.71616 AU
opposition	4619 Nov 16 12:20	24°♄18'05	0°-29'-18	direct	4627 Feb 27 15:48	20°♄45'00	
min. Earth dist.	4619 Nov 15 19:29	24°♄19'47	18.97801 AU				
direct	4620 Jan 30 18:32	22°♄21'30		conjunction	4627 Jun 14 06:53	24°♄43'49	0°-3'-26
				minimum elong	4627 Jun 14 06:52	24°♄43'49	0°03'27
conjunction	4620 May 15 12:22	26°♄15'37	0°-25'-11	behind sun begin	4627 Jun 14 00:14	24°♄42'53	
minimum elong	4620 May 15 12:22	26°♄15'37	0°25'12	behind sun end	4627 Jun 14 13:31	24°♄44'45	
max. Earth dist.	4620 May 16 05:13	26°♄18'01	20.96659 AU	max. Earth dist.	4627 Jun 14 16:14	24°♄45'09	20.69134 AU
	4620 Aug 06 05:49	0°♄		retrograde	4627 Oct 03 08:55	28°♄51'15	
retrograde	4620 Sep 03 03:56	0°♄18'58		opposition	4627 Dec 19 05:52	26°♄50'30	0°-1'-51
	4620 Oct 01 12:14	30°♄		min. Earth dist.	4627 Dec 18 21:53	26°♄51'20	18.66585 AU
opposition	4620 Nov 19 20:20	28°♄19'25	0°-26'-15	direct	4628 Mar 03 00:41	24°♄52'05	
min. Earth dist.	4620 Nov 19 05:17	28°♄20'56	18.95425 AU				
direct	4621 Feb 02 23:50	26°♄22'42		conjunction	4628 Jun 17 18:34	28°♄51'53	0°00'-1
	4621 May 14 20:01	0°♄		minimum elong	4628 Jun 17 18:35	28°♄51'53	0°00'03
				behind sun begin	4628 Jun 17 12:53	28°♄51'06	
conjunction	4621 May 19 20:26	0°♄17'17	0°-22'-22	behind sun end	4628 Jun 18 00:16	28°♄52'41	
minimum elong	4621 May 19 20:26	0°♄17'17	0°22'24	max. Earth dist.	4628 Jun 18 01:51	28°♄52'55	20.64012 AU
max. Earth dist.	4621 May 20 13:06	0°♄19'40	20.94022 AU	asc. node	4628 Jun 20 11:30	29°♄01'18	
retrograde	4621 Sep 07 14:27	4°♄21'06			4628 Jul 07 13:43	0°♄	
opposition	4621 Nov 24 04:09	2°♄21'25	0°-23'-4	retrograde	4628 Oct 06 20:46	3°♄00'05	
min. Earth dist.	4621 Nov 23 13:29	2°♄22'55	18.92515 AU	opposition	4628 Dec 22 15:09	0°♄59'11	0°01'52
direct	4622 Feb 07 06:49	0°♄24'33		min. Earth dist.	4628 Dec 22 09:13	0°♄59'48	18.61381 AU
					4629 Jan 16 11:36	30°♄	
conjunction	4622 May 24 04:49	4°♄19'39	0°-19'-26	direct	4629 Mar 07 07:36	29°♄00'29	
minimum elong	4622 May 24 04:49	4°♄19'39	0°19'27		4629 Apr 24 20:25	0°♄	
max. Earth dist.	4622 May 24 19:05	4°♄21'41	20.90859 AU				
retrograde	4622 Sep 12 00:02	8°♄23'59		conjunction	4629 Jun 22 07:23	3°♄01'21	0°03'25
opposition	4622 Nov 28 12:13	6°♄24'08	0°-19'-45	minimum elong	4629 Jun 22 07:23	3°♄01'21	0°03'25
min. Earth dist.	4622 Nov 27 23:35	6°♄25'25	18.89101 AU	behind sun begin	4629 Jun 22 00:43	3°♄00'25	
direct	4623 Feb 11 12:21	4°♄27'03		behind sun end	4629 Jun 22 14:02	3°♄02'18	
				max. Earth dist.	4629 Jun 22 14:14	3°♄02'19	20.58734 AU
conjunction	4623 May 28 13:45	8°♄22'44	0°-16'-23	retrograde	4629 Oct 11 10:57	7°♄10'20	

opposition	4629 Dec 27 00:30	5° $\overline{50}$ 09'19	0°05'37	direct	4637 Apr 10 00:35	3° $\overline{00}$ 06'08	
min. Earth dist.	4629 Dec 26 18:46	5° $\overline{50}$ 09'54	18.56021 AU				
direct	4630 Mar 11 17:00	3° $\overline{50}$ 10'21		conjunction	4637 Jul 27 20:05	7° $\overline{00}$ 17'23	0°28'55
				minimum elong	4637 Jul 27 20:05	7° $\overline{00}$ 17'23	0°28'55
conjunction	4630 Jun 26 20:51	7° $\overline{50}$ 12'22	0°06'47	max. Earth dist.	4637 Jul 27 12:44	7° $\overline{00}$ 16'17	20.10603 AU
minimum elong	4630 Jun 26 20:52	7° $\overline{50}$ 12'22	0°06'47	retrograde	4637 Nov 15 16:10	11° $\overline{00}$ 23'01	
behind sun begin	4630 Jun 26 14:36	7° $\overline{50}$ 11'28		opposition	4638 Jan 29 22:55	9° $\overline{00}$ 20'54	0°33'39
behind sun end	4630 Jun 27 03:07	7° $\overline{50}$ 13'15		min. Earth dist.	4638 Jan 30 05:07	9° $\overline{00}$ 20'15	18.07325 AU
max. Earth dist.	4630 Jun 27 01:30	7° $\overline{50}$ 13'01	20.53300 AU	direct	4638 Apr 14 16:17	7° $\overline{00}$ 29'10	
retrograde	4630 Oct 16 00:24	11° $\overline{00}$ 22'10					
opposition	4630 Dec 31 10:34	9° $\overline{50}$ 21'02	0°09'21	conjunction	4638 Aug 01 16:27	11° $\overline{00}$ 24'49	0°31'38
min. Earth dist.	4630 Dec 31 07:04	9° $\overline{50}$ 21'24	18.50517 AU	minimum elong	4638 Aug 01 16:27	11° $\overline{00}$ 24'49	0°31'37
direct	4631 Mar 16 01:12	7° $\overline{50}$ 21'48		max. Earth dist.	4638 Aug 01 07:36	11° $\overline{00}$ 24'30	20.04079 AU
					4638 Oct 03 10:40	15° $\overline{00}$	
conjunction	4631 Jul 01 11:10	11° $\overline{00}$ 25'02	0°10'08	retrograde	4638 Nov 20 09:03	15° $\overline{00}$ 25'14	
minimum elong	4631 Jul 01 11:10	11° $\overline{00}$ 25'02	0°10'07		4639 Jan 08 07:56	15° $\overline{00}$ 25'14	
behind sun begin	4631 Jul 01 05:49	11° $\overline{00}$ 24'16		opposition	4639 Feb 03 13:17	13° $\overline{00}$ 25'57	0°36'35
behind sun end	4631 Jul 01 16:31	11° $\overline{00}$ 25'47		min. Earth dist.	4639 Feb 03 21:37	13° $\overline{00}$ 25'04	18.00841 AU
max. Earth dist.	4631 Jul 01 15:07	11° $\overline{00}$ 25'35	20.47725 AU	direct	4639 Apr 19 06:20	11° $\overline{00}$ 25'47	
retrograde	4631 Oct 20 15:28	15° $\overline{00}$ 25'41			4639 Jul 18 11:48	15° $\overline{00}$	
opposition	4632 Jan 04 20:56	13° $\overline{00}$ 23'47	0°13'04				
min. Earth dist.	4632 Jan 04 17:46	13° $\overline{00}$ 23'47	18.44857 AU	conjunction	4639 Aug 06 13:18	16° $\overline{00}$ 27'50	0°34'11
direct	4632 Mar 19 11:45	11° $\overline{00}$ 23'48		minimum elong	4639 Aug 06 13:18	16° $\overline{00}$ 27'50	0°34'11
				max. Earth dist.	4639 Aug 06 02:48	16° $\overline{00}$ 26'16	19.97653 AU
conjunction	4632 Jul 05 02:24	15° $\overline{00}$ 23'27	0°13'27	retrograde	4639 Nov 25 04:30	20° $\overline{00}$ 25'03	
minimum elong	4632 Jul 05 02:24	15° $\overline{00}$ 23'27	0°13'27	opposition	4640 Feb 08 04:03	18° $\overline{00}$ 22'35	0°39'19
behind sun begin	4632 Jul 04 22:43	15° $\overline{00}$ 23'55		min. Earth dist.	4640 Feb 08 12:47	18° $\overline{00}$ 21'39	17.94488 AU
behind sun end	4632 Jul 05 06:04	15° $\overline{00}$ 23'58		direct	4640 Apr 22 23:23	16° $\overline{00}$ 20'00	
max. Earth dist.	4632 Jul 05 04:03	15° $\overline{00}$ 23'41	20.41979 AU				
retrograde	4632 Oct 24 05:52	19° $\overline{00}$ 25'08		conjunction	4640 Aug 10 11:08	20° $\overline{00}$ 23'29	0°36'32
opposition	4633 Jan 08 07:58	17° $\overline{00}$ 24'38	0°16'44	minimum elong	4640 Aug 10 11:08	20° $\overline{00}$ 23'29	0°36'31
min. Earth dist.	4633 Jan 08 07:19	17° $\overline{00}$ 24'42	18.39027 AU	max. Earth dist.	4640 Aug 09 23:44	20° $\overline{00}$ 23'46	19.91372 AU
direct	4633 Mar 23 21:37	15° $\overline{00}$ 24'51		retrograde	4640 Nov 28 22:44	24° $\overline{00}$ 25'26	
				opposition	4641 Feb 11 19:28	22° $\overline{00}$ 25'51	0°41'49
conjunction	4633 Jul 09 18:41	19° $\overline{00}$ 25'39	0°16'43	min. Earth dist.	4641 Feb 12 06:01	22° $\overline{00}$ 24'42	17.88318 AU
minimum elong	4633 Jul 09 18:42	19° $\overline{00}$ 25'39	0°16'43	direct	4641 Apr 27 14:57	20° $\overline{00}$ 24'52	
max. Earth dist.	4633 Jul 09 19:04	19° $\overline{00}$ 25'42	20.36054 AU				
retrograde	4633 Oct 28 22:01	24° $\overline{00}$ 28'02		conjunction	4641 Aug 15 09:40	25° $\overline{00}$ 24'45	0°38'40
opposition	4634 Jan 12 19:26	22° $\overline{00}$ 26'35	0°20'20	minimum elong	4641 Aug 15 09:40	25° $\overline{00}$ 24'45	0°38'39
min. Earth dist.	4634 Jan 12 19:25	22° $\overline{00}$ 26'35	18.32993 AU	max. Earth dist.	4641 Aug 14 20:23	25° $\overline{00}$ 20'45	19.85325 AU
direct	4634 Mar 28 09:49	20° $\overline{00}$ 26'28		retrograde	4641 Dec 03 19:12	29° $\overline{00}$ 23'27	
				opposition	4642 Feb 16 11:31	27° $\overline{00}$ 20'46	0°44'05
conjunction	4634 Jul 14 11:49	24° $\overline{00}$ 23'36	0°19'56	min. Earth dist.	4642 Feb 16 22:26	27° $\overline{00}$ 19'35	17.82407 AU
minimum elong	4634 Jul 14 11:49	24° $\overline{00}$ 23'36	0°19'56	direct	4642 May 02 09:01	25° $\overline{00}$ 17'25	
max. Earth dist.	4634 Jul 14 09:46	24° $\overline{00}$ 23'18	20.29907 AU				
retrograde	4634 Nov 02 13:03	28° $\overline{00}$ 26'49		conjunction	4642 Aug 20 08:56	29° $\overline{00}$ 23'44	0°40'35
opposition	4635 Jan 17 07:34	26° $\overline{00}$ 25'14	0°23'51	minimum elong	4642 Aug 20 08:55	29° $\overline{00}$ 23'44	0°40'35
min. Earth dist.	4635 Jan 17 10:09	26° $\overline{00}$ 24'58	18.26753 AU	max. Earth dist.	4642 Aug 19 19:17	29° $\overline{00}$ 23'40	19.79544 AU
direct	4635 Apr 01 21:36	24° $\overline{00}$ 24'45			4642 Aug 27 01:10	0° $\overline{00}$	
				retrograde	4642 Dec 08 15:13	3° $\overline{00}$ 25'09	
conjunction	4635 Jul 19 05:48	28° $\overline{00}$ 23'15	0°23'03	opposition	4643 Feb 21 04:19	1° $\overline{00}$ 25'24	0°46'06
minimum elong	4635 Jul 19 05:48	28° $\overline{00}$ 23'15	0°23'03	min. Earth dist.	4643 Feb 21 16:37	1° $\overline{00}$ 25'04	17.76787 AU
max. Earth dist.	4635 Jul 19 02:09	28° $\overline{00}$ 23'43	20.23587 AU		4643 Apr 16 12:22	30° $\overline{00}$ 25'14	
	4635 Aug 13 03:16	0° $\overline{00}$		direct	4643 May 07 02:15	29° $\overline{00}$ 24'45	
retrograde	4635 Nov 07 06:01	2° $\overline{00}$ 24'18			4643 May 27 13:06	0° $\overline{00}$	
opposition	4636 Jan 21 20:08	0° $\overline{00}$ 24'32	0°27'15				
min. Earth dist.	4636 Jan 21 23:18	0° $\overline{00}$ 24'51	18.20355 AU	conjunction	4643 Aug 25 08:48	4° $\overline{00}$ 28'27	0°42'15
	4636 Feb 09 03:53	30° $\overline{00}$ 28'27		minimum elong	4643 Aug 25 08:48	4° $\overline{00}$ 28'27	0°42'14
direct	4636 Apr 05 11:34	28° $\overline{00}$ 24'39		max. Earth dist.	4643 Aug 24 17:11	4° $\overline{00}$ 26'05	19.74097 AU
	4636 May 30 02:05	0° $\overline{00}$		retrograde	4643 Dec 13 12:43	8° $\overline{00}$ 28'35	
				opposition	4644 Feb 25 21:42	6° $\overline{00}$ 25'48	0°47'49
conjunction	4636 Jul 23 00:28	2° $\overline{00}$ 25'43	0°26'03	min. Earth dist.	4644 Feb 26 10:28	6° $\overline{00}$ 24'25	17.71515 AU
minimum elong	4636 Jul 23 00:28	2° $\overline{00}$ 25'43	0°26'02	direct	4644 May 10 21:09	4° $\overline{00}$ 21'53	
max. Earth dist.	4636 Jul 22 18:50	2° $\overline{00}$ 25'41	20.17123 AU				
retrograde	4636 Nov 10 21:57	7° $\overline{00}$ 29'22		conjunction	4644 Aug 29 09:32	8° $\overline{00}$ 22'59	0°43'39
opposition	4637 Jan 25 09:25	5° $\overline{00}$ 27'27	0°30'32	minimum elong	4644 Aug 29 09:32	8° $\overline{00}$ 22'59	0°43'40
min. Earth dist.	4637 Jan 25 15:02	5° $\overline{00}$ 26'51	18.13851 AU	max. Earth dist.	4644 Aug 28 17:55	8° $\overline{00}$ 24'36	19.68983 AU

retrograde	4644 Dec 17 10:47	13° $\mathring{M}$ 03'46		retrograde	4653 Jan 24 01:41	20° $\mathring{A}$ 34'19	
opposition	4645 Mar 01 15:53	11° $\mathring{M}$ 01'00	0°49'16	opposition	4653 Apr 07 15:35	18° $\mathring{A}$ 31'35	0°48'56
min. Earth dist.	4645 Mar 02 05:51	10° $\mathring{M}$ 59'29	17.66563 AU	min. Earth dist.	4653 Apr 08 10:14	18° $\mathring{A}$ 29'32	17.38632 AU
direct	4645 May 15 16:00	8° $\mathring{M}$ 56'52		direct	4653 Jun 22 11:20	16° $\mathring{A}$ 25'42	
conjunction	4645 Sep 03 10:53	13° $\mathring{M}$ 19'17	0°44'48	conjunction	4653 Oct 12 12:08	20° $\mathring{A}$ 55'24	0°43'13
minimum elong	4645 Sep 03 10:53	13° $\mathring{M}$ 19'17	0°44'48	minimum elong	4653 Oct 12 12:08	20° $\mathring{A}$ 55'24	0°43'13
max. Earth dist.	4645 Sep 02 17:01	13° $\mathring{M}$ 16'33	19.64192 AU	max. Earth dist.	4653 Oct 11 13:38	20° $\mathring{A}$ 51'54	19.37734 AU
retrograde	4645 Dec 22 08:51	17° $\mathring{M}$ 40'42		retrograde	4654 Jan 29 00:03	25° $\mathring{A}$ 18'56	
opposition	4646 Mar 06 10:38	15° $\mathring{M}$ 37'58	0°50'24	opposition	4654 Apr 12 14:47	23° $\mathring{A}$ 16'12	0°47'21
min. Earth dist.	4646 Mar 07 01:31	15° $\mathring{M}$ 36'20	17.61934 AU	min. Earth dist.	4654 Apr 13 10:15	23° $\mathring{A}$ 14'04	17.37061 AU
direct	4646 May 20 12:13	13° $\mathring{M}$ 33'35		direct	4654 Jun 27 11:59	21° $\mathring{A}$ 10'11	
conjunction	4646 Sep 08 13:00	17° $\mathring{M}$ 57'18	0°45'40	conjunction	4654 Oct 17 15:33	25° $\mathring{A}$ 40'16	0°41'38
minimum elong	4646 Sep 08 13:00	17° $\mathring{M}$ 57'18	0°45'40	minimum elong	4654 Oct 17 15:33	25° $\mathring{A}$ 40'16	0°41'38
max. Earth dist.	4646 Sep 07 19:12	17° $\mathring{M}$ 54'34	19.59700 AU	max. Earth dist.	4654 Oct 16 17:28	25° $\mathring{A}$ 36'49	19.36458 AU
retrograde	4646 Dec 27 08:09	22° $\mathring{M}$ 19'15			4655 Jan 22 14:28	0° $\mathring{M}$	
opposition	4647 Mar 11 06:16	20° $\mathring{M}$ 16'33	0°51'13	retrograde	4655 Feb 03 01:14	0° $\mathring{M}$ 03'41	
min. Earth dist.	4647 Mar 11 22:01	20° $\mathring{M}$ 14'50	17.57589 AU		4655 Feb 14 12:41	30° $\mathring{R}$ $\mathring{A}$	
direct	4647 May 25 09:03	18° $\mathring{M}$ 11'58		opposition	4655 Apr 17 14:10	28° $\mathring{A}$ 01'00	0°45'26
conjunction	4647 Sep 13 15:19	22° $\mathring{M}$ 36'51	0°46'15	min. Earth dist.	4655 Apr 18 08:16	27° $\mathring{A}$ 59'01	17.36082 AU
minimum elong	4647 Sep 13 15:19	22° $\mathring{M}$ 36'51	0°46'15	direct	4655 Jul 02 15:10	25° $\mathring{A}$ 54'54	
max. Earth dist.	4647 Sep 12 19:18	22° $\mathring{M}$ 33'46	19.55499 AU		4655 Oct 16 01:26	0° $\mathring{M}$	
retrograde	4648 Jan 01 06:08	26° $\mathring{M}$ 59'18		conjunction	4655 Oct 22 18:46	0° $\mathring{M}$ 25'14	0°39'46
opposition	4648 Mar 15 02:32	24° $\mathring{M}$ 56'35	0°51'42	minimum elong	4655 Oct 22 18:46	0° $\mathring{M}$ 25'14	0°39'46
min. Earth dist.	4648 Mar 15 19:23	24° $\mathring{M}$ 54'45	17.53542 AU	max. Earth dist.	4655 Oct 21 21:29	0° $\mathring{M}$ 21'54	19.35785 AU
direct	4648 May 29 07:17	22° $\mathring{M}$ 51'46		retrograde	4656 Feb 07 23:33	4° $\mathring{M}$ 48'30	
conjunction	4648 Sep 17 18:26	27° $\mathring{M}$ 17'45	0°46'31	opposition	4656 Apr 21 14:03	2° $\mathring{M}$ 45'54	0°43'12
minimum elong	4648 Sep 17 18:26	27° $\mathring{M}$ 17'45	0°46'30	min. Earth dist.	4656 Apr 22 08:39	2° $\mathring{M}$ 43'52	17.35725 AU
max. Earth dist.	4648 Sep 16 22:30	27° $\mathring{M}$ 14'40	19.51592 AU	direct	4656 Jul 06 15:39	0° $\mathring{M}$ 39'46	
	4648 Nov 03 15:57	0° $\mathring{A}$		conjunction	4656 Oct 26 21:49	5° $\mathring{M}$ 10'15	0°37'38
retrograde	4649 Jan 05 05:29	1° $\mathring{A}$ 40'34		minimum elong	4656 Oct 26 21:49	5° $\mathring{M}$ 10'15	0°37'37
	4649 Mar 11 11:38	30° $\mathring{R}$ $\mathring{M}$		max. Earth dist.	4656 Oct 26 00:42	5° $\mathring{M}$ 06'57	19.35752 AU
opposition	4649 Mar 19 23:16	29° $\mathring{M}$ 37'53	0°51'51	retrograde	4657 Feb 12 00:46	9° $\mathring{M}$ 33'18	
min. Earth dist.	4649 Mar 20 16:36	29° $\mathring{M}$ 35'59	17.49784 AU	opposition	4657 Apr 26 13:55	7° $\mathring{M}$ 30'49	0°40'41
direct	4649 Jun 03 06:30	27° $\mathring{M}$ 32'50		min. Earth dist.	4657 Apr 27 06:58	7° $\mathring{M}$ 28'58	17.35998 AU
	4649 Aug 20 12:50	0° $\mathring{A}$		direct	4657 Jul 11 19:15	5° $\mathring{M}$ 24'44	
conjunction	4649 Sep 22 21:44	1° $\mathring{A}$ 59'48	0°46'29	max. Earth dist.	4657 Oct 31 05:05	9° $\mathring{M}$ 52'12	19.36333 AU
minimum elong	4649 Sep 22 21:44	1° $\mathring{A}$ 59'48	0°46'29	conjunction	4657 Nov 01 00:41	9° $\mathring{M}$ 55'16	0°35'14
max. Earth dist.	4649 Sep 21 23:53	1° $\mathring{A}$ 56'25	19.47997 AU	minimum elong	4657 Nov 01 00:41	9° $\mathring{M}$ 55'16	0°35'15
retrograde	4650 Jan 10 03:23	6° $\mathring{A}$ 22'56		retrograde	4658 Feb 16 23:09	14° $\mathring{M}$ 18'08	
opposition	4650 Mar 24 20:44	4° $\mathring{A}$ 20'13	0°51'39	opposition	4658 May 01 14:21	12° $\mathring{M}$ 15'44	0°37'53
min. Earth dist.	4650 Mar 25 15:12	4° $\mathring{A}$ 18'12	17.46372 AU	min. Earth dist.	4658 May 02 07:41	12° $\mathring{M}$ 13'50	17.36873 AU
direct	4650 Jun 08 06:30	2° $\mathring{A}$ 14'57		direct	4658 Jul 16 20:10	10° $\mathring{M}$ 09'45	
max. Earth dist.	4650 Sep 27 03:40	6° $\mathring{A}$ 39'26	19.44768 AU	max. Earth dist.	4658 Nov 05 07:21	14° $\mathring{M}$ 37'07	19.37503 AU
conjunction	4650 Sep 28 01:12	6° $\mathring{A}$ 42'47	0°46'08	conjunction	4658 Nov 06 02:56	14° $\mathring{M}$ 40'11	0°32'37
minimum elong	4650 Sep 28 01:12	6° $\mathring{A}$ 42'47	0°46'08	minimum elong	4658 Nov 06 02:56	14° $\mathring{M}$ 40'11	0°32'37
retrograde	4651 Jan 15 03:07	11° $\mathring{A}$ 06'08			4658 Nov 11 09:12	15° $\mathring{M}$	
opposition	4651 Mar 29 18:36	9° $\mathring{A}$ 03'25	0°51'05	retrograde	4659 Feb 21 23:58	19° $\mathring{M}$ 02'38	
min. Earth dist.	4651 Mar 30 12:53	9° $\mathring{A}$ 01'25	17.43335 AU	opposition	4659 May 06 14:47	17° $\mathring{M}$ 00'30	0°34'50
direct	4651 Jun 13 08:01	6° $\mathring{A}$ 57'56		min. Earth dist.	4659 May 07 06:37	16° $\mathring{M}$ 58'47	17.38307 AU
max. Earth dist.	4651 Oct 02 06:08	11° $\mathring{A}$ 22'59	19.41943 AU		4659 Jul 07 17:50	15° $\mathring{R}$ $\mathring{M}$	
conjunction	4651 Oct 03 04:49	11° $\mathring{A}$ 26'30	0°45'28	direct	4659 Jul 22 00:09	14° $\mathring{M}$ 54'39	
minimum elong	4651 Oct 03 04:49	11° $\mathring{A}$ 26'30	0°45'28		4659 Aug 05 04:35	15° $\mathring{M}$	
retrograde	4652 Jan 20 01:11	15° $\mathring{A}$ 50'00		max. Earth dist.	4659 Nov 10 11:24	19° $\mathring{M}$ 22'06	19.39187 AU
opposition	4652 Apr 02 16:53	13° $\mathring{A}$ 47'15	0°50'11	conjunction	4659 Nov 11 05:07	19° $\mathring{M}$ 24'53	0°29'46
min. Earth dist.	4652 Apr 03 12:16	13° $\mathring{A}$ 45'08	17.40745 AU	minimum elong	4659 Nov 11 05:08	19° $\mathring{M}$ 24'53	0°29'47
direct	4652 Jun 17 08:41	11° $\mathring{A}$ 41'34		retrograde	4660 Feb 26 22:01	23° $\mathring{M}$ 46'55	
max. Earth dist.	4652 Oct 06 10:12	16° $\mathring{A}$ 07'17	19.39591 AU	opposition	4660 May 10 15:23	21° $\mathring{M}$ 44'59	0°31'32
conjunction	4652 Oct 07 08:32	16° $\mathring{A}$ 10'46	0°44'29	min. Earth dist.	4660 May 11 07:25	21° $\mathring{M}$ 43'15	17.40226 AU
minimum elong	4652 Oct 07 08:32	16° $\mathring{A}$ 10'46	0°44'31	direct	4660 Jul 26 01:43	19° $\mathring{M}$ 39'18	



conjunction	4660 Nov 15 06:45	24° $\mathbb{M}$ 09'11	0°26'44	behind sun begin	4667 Dec 18 16:14	26° $\mathbb{Z}$ 50'57	
minimum elong	4660 Nov 15 06:45	24° $\mathbb{M}$ 09'11	0°26'44	behind sun end	4667 Dec 19 05:28	26° $\mathbb{Z}$ 52'58	
max. Earth dist.	4660 Nov 14 12:43	24° $\mathbb{M}$ 06'21	19.41339 AU	max. Earth dist.	4667 Dec 18 14:14	26° $\mathbb{Z}$ 50'38	19.66555 AU
retrograde	4661 Mar 02 22:03	28° $\mathbb{M}$ 30'45			4668 Feb 13 04:10	0° $\mathbb{Z}$	
opposition	4661 May 15 16:06	26° $\mathbb{M}$ 28'59	0°28'02	retrograde	4668 Apr 04 01:05	1° $\mathbb{Z}$ 08'35	
min. Earth dist.	4661 May 16 06:49	26° $\mathbb{M}$ 27'24	17.42589 AU		4668 May 27 08:57	30° $\mathbb{R}$ $\mathbb{Z}$	
direct	4661 Jul 31 05:57	24° $\mathbb{M}$ 23'29		opposition	4668 Jun 17 16:57	29° $\mathbb{Z}$ 07'46	0°00'03
				min. Earth dist.	4668 Jun 17 23:54	29° $\mathbb{Z}$ 07'02	17.68991 AU
conjunction	4661 Nov 20 07:52	28° $\mathbb{M}$ 52'53	0°23'30	desc. node	4668 Jun 22 20:24	28° $\mathbb{Z}$ 54'46	
minimum elong	4661 Nov 20 07:52	28° $\mathbb{M}$ 52'53	0°23'30	direct	4668 Sep 02 20:11	27° $\mathbb{Z}$ 03'38	
max. Earth dist.	4661 Nov 19 15:54	28° $\mathbb{M}$ 50'23	19.43899 AU		4668 Nov 29 02:36	0° $\mathbb{Z}$	
	4661 Dec 08 07:34	0° $\mathbb{Z}$					
retrograde	4662 Mar 07 19:34	3° $\mathbb{Z}$ 13'54		conjunction	4668 Dec 22 18:20	1° $\mathbb{Z}$ 26'31	0°-1'-53
opposition	4662 May 20 16:58	1° $\mathbb{Z}$ 12'20	0°24'21	minimum elong	4668 Dec 22 18:20	1° $\mathbb{Z}$ 26'31	0°01'54
min. Earth dist.	4662 May 21 07:24	1° $\mathbb{Z}$ 10'46	17.45333 AU	behind sun begin	4668 Dec 22 11:43	1° $\mathbb{Z}$ 25'31	
	4662 Jun 19 15:27	30° $\mathbb{R}$ $\mathbb{M}$		behind sun end	4668 Dec 23 00:57	1° $\mathbb{Z}$ 27'31	
direct	4662 Aug 05 08:38	29° $\mathbb{M}$ 07'00		max. Earth dist.	4668 Dec 22 11:06	1° $\mathbb{Z}$ 25'25	19.71546 AU
	4662 Sep 19 20:18	0° $\mathbb{Z}$		retrograde	4669 Apr 08 20:07	5° $\mathbb{Z}$ 42'19	
				opposition	4669 Jun 22 15:50	3° $\mathbb{Z}$ 41'37	0°-4'-3
conjunction	4662 Nov 25 08:16	3° $\mathbb{Z}$ 35'47	0°20'08	min. Earth dist.	4669 Jun 22 21:43	3° $\mathbb{Z}$ 41'00	17.74181 AU
minimum elong	4662 Nov 25 08:16	3° $\mathbb{Z}$ 35'47	0°20'09	direct	4669 Sep 07 18:54	1° $\mathbb{Z}$ 37'45	
max. Earth dist.	4662 Nov 24 16:07	3° $\mathbb{Z}$ 33'16	19.46835 AU				
retrograde	4663 Mar 12 18:01	7° $\mathbb{Z}$ 56'13		conjunction	4669 Dec 27 12:49	5° $\mathbb{Z}$ 59'24	0°-5'-34
opposition	4663 May 25 17:32	5° $\mathbb{Z}$ 54'47	0°20'31	minimum elong	4669 Dec 27 12:49	5° $\mathbb{Z}$ 59'24	0°05'34
min. Earth dist.	4663 May 26 06:48	5° $\mathbb{Z}$ 53'22	17.48451 AU	behind sun begin	4669 Dec 27 06:28	5° $\mathbb{Z}$ 58'27	
direct	4663 Aug 10 12:09	3° $\mathbb{Z}$ 49'38		behind sun end	4669 Dec 27 19:11	6° $\mathbb{Z}$ 00'22	
				max. Earth dist.	4669 Dec 27 07:44	5° $\mathbb{Z}$ 58'39	19.76925 AU
conjunction	4663 Nov 30 08:07	8° $\mathbb{Z}$ 17'43	0°16'38	retrograde	4670 Apr 13 15:18	10° $\mathbb{Z}$ 14'22	
minimum elong	4663 Nov 30 08:07	8° $\mathbb{Z}$ 17'43	0°16'38	opposition	4670 Jun 27 14:08	8° $\mathbb{Z}$ 13'50	0°-8'-7
max. Earth dist.	4663 Nov 29 18:04	8° $\mathbb{Z}$ 15'31	19.50122 AU	min. Earth dist.	4670 Jun 27 17:24	8° $\mathbb{Z}$ 13'29	17.79727 AU
retrograde	4664 Mar 16 15:13	12° $\mathbb{Z}$ 37'28		direct	4670 Sep 12 18:49	6° $\mathbb{Z}$ 10'18	
opposition	4664 May 29 18:04	10° $\mathbb{Z}$ 36'11	0°16'33				
min. Earth dist.	4664 May 30 06:34	10° $\mathbb{Z}$ 34'51	17.51886 AU	conjunction	4671 Jan 01 06:34	10° $\mathbb{Z}$ 30'40	0°-9'-11
direct	4664 Aug 14 15:06	8° $\mathbb{Z}$ 31'14		minimum elong	4671 Jan 01 06:34	10° $\mathbb{Z}$ 30'40	0°09'11
				behind sun begin	4671 Jan 01 00:57	10° $\mathbb{Z}$ 29'49	
conjunction	4664 Dec 04 07:05	12° $\mathbb{Z}$ 58'27	0°13'02	behind sun end	4671 Jan 01 12:10	10° $\mathbb{Z}$ 31'30	
minimum elong	4664 Dec 04 07:05	12° $\mathbb{Z}$ 58'27	0°13'03	max. Earth dist.	4671 Jan 01 03:15	10° $\mathbb{Z}$ 30'10	19.82638 AU
behind sun begin	4664 Dec 04 03:04	12° $\mathbb{Z}$ 57'50		retrograde	4671 Apr 18 09:13	14° $\mathbb{Z}$ 44'47	
behind sun end	4664 Dec 04 11:05	12° $\mathbb{Z}$ 59'04		opposition	4671 Jul 02 11:55	12° $\mathbb{Z}$ 44'25	0°-12'-7
max. Earth dist.	4664 Dec 03 17:10	12° $\mathbb{Z}$ 56'17	19.53724 AU	min. Earth dist.	4671 Jul 02 14:24	12° $\mathbb{Z}$ 44'10	17.85597 AU
retrograde	4665 Mar 21 12:09	17° $\mathbb{Z}$ 17'30		direct	4671 Sep 17 16:12	10° $\mathbb{Z}$ 41'15	
opposition	4665 Jun 03 18:18	15° $\mathbb{Z}$ 16'21	0°12'29				
min. Earth dist.	4665 Jun 04 05:47	15° $\mathbb{Z}$ 15'07	17.55654 AU	conjunction	4672 Jan 05 23:27	15° $\mathbb{Z}$ 00'18	0°-12'-43
direct	4665 Aug 19 17:03	13° $\mathbb{Z}$ 11'34		minimum elong	4672 Jan 05 23:27	15° $\mathbb{Z}$ 00'18	0°12'43
				behind sun begin	4672 Jan 05 19:15	14° $\mathbb{Z}$ 59'40	
conjunction	4665 Dec 09 05:20	17° $\mathbb{Z}$ 37'51	0°09'23	behind sun end	4672 Jan 06 03:40	15° $\mathbb{Z}$ 00'56	
minimum elong	4665 Dec 09 05:20	17° $\mathbb{Z}$ 37'51	0°09'23	max. Earth dist.	4672 Jan 05 21:47	15° $\mathbb{Z}$ 00'04	19.88645 AU
behind sun begin	4665 Dec 08 23:46	17° $\mathbb{Z}$ 37'00		retrograde	4672 Apr 22 03:19	19° $\mathbb{Z}$ 13'35	
behind sun end	4665 Dec 09 10:54	17° $\mathbb{Z}$ 38'41		opposition	4672 Jul 06 09:12	17° $\mathbb{Z}$ 13'25	0°-16'-1
max. Earth dist.	4665 Dec 08 17:39	17° $\mathbb{Z}$ 36'02	19.57661 AU	min. Earth dist.	4672 Jul 06 09:06	17° $\mathbb{Z}$ 13'26	17.91703 AU
retrograde	4666 Mar 26 09:02	21° $\mathbb{Z}$ 56'07		direct	4672 Sep 21 15:07	15° $\mathbb{Z}$ 10'39	
opposition	4666 Jun 08 18:18	19° $\mathbb{Z}$ 55'05	0°08'22				
min. Earth dist.	4666 Jun 09 04:19	19° $\mathbb{Z}$ 54'01	17.59745 AU	conjunction	4673 Jan 09 15:28	19° $\mathbb{Z}$ 28'21	0°-16'-10
direct	4666 Aug 24 19:15	17° $\mathbb{Z}$ 50'30		minimum elong	4673 Jan 09 15:28	19° $\mathbb{Z}$ 28'21	0°16'10
				behind sun begin	4673 Jan 09 15:07	19° $\mathbb{Z}$ 28'18	
conjunction	4666 Dec 14 02:27	22° $\mathbb{Z}$ 15'43	0°05'41	behind sun end	4673 Jan 09 15:49	19° $\mathbb{Z}$ 28'24	
minimum elong	4666 Dec 14 02:26	22° $\mathbb{Z}$ 15'43	0°05'41	max. Earth dist.	4673 Jan 09 15:47	19° $\mathbb{Z}$ 28'24	19.94841 AU
behind sun begin	4666 Dec 13 20:04	22° $\mathbb{Z}$ 14'45		retrograde	4673 Apr 26 19:36	23° $\mathbb{Z}$ 40'48	
behind sun end	4666 Dec 14 08:49	22° $\mathbb{Z}$ 16'41		opposition	4673 Jul 11 06:14	21° $\mathbb{Z}$ 40'49	0°-19'-47
max. Earth dist.	4666 Dec 13 15:35	22° $\mathbb{Z}$ 14'02	19.61927 AU	min. Earth dist.	4673 Jul 11 05:35	21° $\mathbb{Z}$ 40'54	17.97981 AU
retrograde	4667 Mar 31 04:53	26° $\mathbb{Z}$ 33'12		direct	4673 Sep 26 11:44	19° $\mathbb{Z}$ 38'27	
opposition	4667 Jun 13 17:55	24° $\mathbb{Z}$ 32'15	0°04'13				
min. Earth dist.	4667 Jun 14 02:57	24° $\mathbb{Z}$ 31'18	17.64191 AU	conjunction	4674 Jan 14 06:44	23° $\mathbb{Z}$ 54'46	0°-19'-30
direct	4667 Aug 29 19:16	22° $\mathbb{Z}$ 27'52		minimum elong	4674 Jan 14 06:44	23° $\mathbb{Z}$ 54'46	0°19'31
				max. Earth dist.	4674 Jan 14 08:17	23° $\mathbb{Z}$ 55'00	20.01180 AU
conjunction	4667 Dec 18 22:50	26° $\mathbb{Z}$ 51'57	0°01'56	retrograde	4674 May 01 12:44	28° $\mathbb{Z}$ 06'24	
minimum elong	4667 Dec 18 22:51	26° $\mathbb{Z}$ 51'57	0°01'57	opposition	4674 Jul 16 02:32	26° $\mathbb{Z}$ 06'35	0°-23'-25

min. Earth dist.	4674 Jul 15 23:22	26° $\overline{3}$ 06'55	18.04356 AU	max. Earth dist.	4682 Feb 17 17:07	28° $\approx$ 25'37	20.49749 AU
direct	4674 Oct 01 09:04	24° $\overline{3}$ 04'36			4682 Mar 16 19:38	0° $\overline{K}$	
				retrograde	4682 Jun 05 01:32	2° $\overline{K}$ 29'18	
conjunction	4675 Jan 18 21:13	28° $\overline{3}$ 19'32	0°-22'-42	opposition	4682 Aug 20 23:21	0° $\overline{K}$ 30'09	0°-45'-25
minimum elong	4675 Jan 18 21:13	28° $\overline{3}$ 19'32	0°22'43	min. Earth dist.	4682 Aug 20 10:07	0° $\overline{K}$ 31'30	18.52559 AU
max. Earth dist.	4675 Jan 19 00:44	28° $\overline{3}$ 20'04	20.07566 AU		4682 Sep 02 12:43	30° $\overline{R}$ $\approx$	
	4675 Feb 16 01:38	0° $\approx$		direct	4682 Nov 05 23:41	28° $\approx$ 30'40	
retrograde	4675 May 06 03:37	2° $\approx$ 30'20			4683 Jan 05 14:50	0° $\overline{K}$	
opposition	4675 Jul 20 22:29	0° $\approx$ 30'42	0°-26'-54				
min. Earth dist.	4675 Jul 20 19:00	0° $\approx$ 31'03	18.10749 AU	conjunction	4683 Feb 21 13:39	2° $\overline{K}$ 34'40	0°-41'-47
	4675 Aug 02 11:50	30° $\overline{R}$ $\overline{3}$		minimum elong	4683 Feb 21 13:39	2° $\overline{K}$ 34'40	0°41'48
direct	4675 Oct 06 04:12	28° $\overline{3}$ 29'05		max. Earth dist.	4683 Feb 22 04:04	2° $\overline{K}$ 36'48	20.55317 AU
	4675 Dec 06 02:45	0° $\approx$		retrograde	4683 Jun 09 11:46	6° $\overline{K}$ 39'31	
				opposition	4683 Aug 25 13:57	4° $\overline{K}$ 40'26	0°-47'-5
conjunction	4676 Jan 23 10:56	2° $\approx$ 42'36	0°-25'-46	min. Earth dist.	4683 Aug 25 00:02	4° $\overline{K}$ 41'51	18.58075 AU
minimum elong	4676 Jan 23 10:56	2° $\approx$ 42'36	0°25'47	direct	4683 Nov 10 12:50	2° $\overline{K}$ 41'16	
max. Earth dist.	4676 Jan 23 15:10	2° $\approx$ 43'15	20.13945 AU				
retrograde	4676 May 09 19:40	6° $\approx$ 52'35		conjunction	4684 Feb 25 21:28	6° $\overline{K}$ 44'05	0°-43'-12
opposition	4676 Jul 24 17:37	4° $\approx$ 53'05	0°-30'-12	minimum elong	4684 Feb 25 21:28	6° $\overline{K}$ 44'05	0°43'13
min. Earth dist.	4676 Jul 24 11:49	4° $\approx$ 53'41	18.17095 AU	max. Earth dist.	4684 Feb 26 12:09	6° $\overline{K}$ 46'15	20.60777 AU
direct	4676 Oct 10 00:03	2° $\approx$ 51'50		retrograde	4684 Jun 12 23:47	10° $\overline{K}$ 48'22	
				opposition	4684 Aug 29 03:52	8° $\overline{K}$ 49'22	0°-48'-31
conjunction	4677 Jan 27 00:00	7° $\approx$ 03'57	0°-28'-39	min. Earth dist.	4684 Aug 28 12:08	8° $\overline{K}$ 50'57	18.63473 AU
minimum elong	4677 Jan 27 00:00	7° $\approx$ 03'57	0°28'40	direct	4684 Nov 14 00:07	6° $\overline{K}$ 50'31	
max. Earth dist.	4677 Jan 27 06:12	7° $\approx$ 04'53	20.20239 AU				
retrograde	4677 May 14 09:15	11° $\approx$ 13'08		conjunction	4685 Mar 01 05:00	10° $\overline{K}$ 52'13	0°-44'-22
opposition	4677 Jul 29 12:27	9° $\approx$ 13'45	0°-33'-18	minimum elong	4685 Mar 01 05:00	10° $\overline{K}$ 52'13	0°44'23
min. Earth dist.	4677 Jul 29 06:23	9° $\approx$ 14'23	18.23341 AU	max. Earth dist.	4685 Mar 01 21:56	10° $\overline{K}$ 54'43	20.66088 AU
direct	4677 Oct 14 17:33	7° $\approx$ 12'50		retrograde	4685 Jun 17 09:34	14° $\overline{K}$ 56'00	
				opposition	4685 Sep 02 17:19	12° $\overline{K}$ 57'06	0°-49'-40
conjunction	4678 Jan 31 12:05	11° $\approx$ 23'32	0°-31'-22	min. Earth dist.	4685 Sep 02 00:58	12° $\overline{K}$ 58'44	18.68695 AU
minimum elong	4678 Jan 31 12:05	11° $\approx$ 23'32	0°31'22	direct	4685 Nov 18 12:11	10° $\overline{K}$ 58'35	
max. Earth dist.	4678 Jan 31 18:47	11° $\approx$ 24'33	20.26424 AU				
	4678 Apr 13 19:52	15° $\approx$		conjunction	4686 Mar 05 11:54	14° $\overline{K}$ 59'13	0°-45'-19
retrograde	4678 May 19 00:24	15° $\approx$ 31'56		minimum elong	4686 Mar 05 11:54	14° $\overline{K}$ 59'13	0°45'20
	4678 Jun 24 05:53	15° $\overline{R}$ $\approx$		max. Earth dist.	4686 Mar 06 04:49	15° $\overline{K}$ 01'42	20.71209 AU
opposition	4678 Aug 03 06:25	13° $\approx$ 32'38	0°-36'-12	retrograde	4686 Jun 21 21:28	19° $\overline{K}$ 02'33	
min. Earth dist.	4678 Aug 02 22:11	13° $\approx$ 33'28	18.29452 AU	opposition	4686 Sep 07 06:09	17° $\overline{K}$ 03'43	0°-50'-34
direct	4678 Oct 19 11:43	11° $\approx$ 32'01		min. Earth dist.	4686 Sep 06 12:29	17° $\overline{K}$ 05'30	18.73701 AU
	4679 Jan 24 11:58	15° $\approx$		direct	4686 Nov 22 22:21	15° $\overline{K}$ 05'31	
conjunction	4679 Feb 04 23:36	15° $\approx$ 41'19	0°-33'-53	conjunction	4687 Mar 09 18:39	19° $\overline{K}$ 05'10	0°-46'-2
minimum elong	4679 Feb 04 23:36	15° $\approx$ 41'19	0°33'53	minimum elong	4687 Mar 09 18:39	19° $\overline{K}$ 05'10	0°46'02
max. Earth dist.	4679 Feb 05 08:21	15° $\approx$ 42'38	20.32451 AU	max. Earth dist.	4687 Mar 10 13:28	19° $\overline{K}$ 07'55	20.76069 AU
retrograde	4679 May 23 12:16	19° $\approx$ 48'56		retrograde	4687 Jun 26 06:34	23° $\overline{K}$ 08'04	
opposition	4679 Aug 07 23:39	17° $\approx$ 49'41	0°-38'-52	opposition	4687 Sep 11 18:22	21° $\overline{K}$ 09'21	0°-51'-13
min. Earth dist.	4679 Aug 07 15:13	17° $\approx$ 50'33	18.35406 AU	min. Earth dist.	4687 Sep 11 00:22	21° $\overline{K}$ 11'09	18.78410 AU
direct	4679 Oct 24 03:42	15° $\approx$ 49'22		direct	4687 Nov 27 09:05	19° $\overline{K}$ 11'28	
conjunction	4680 Feb 09 10:11	19° $\approx$ 57'17	0°-36'-11	conjunction	4688 Mar 13 00:58	23° $\overline{K}$ 10'10	0°-46'-30
minimum elong	4680 Feb 09 10:11	19° $\approx$ 57'17	0°36'11	minimum elong	4688 Mar 13 00:58	23° $\overline{K}$ 10'10	0°46'32
max. Earth dist.	4680 Feb 09 19:21	19° $\approx$ 58'39	20.38337 AU	max. Earth dist.	4688 Mar 13 19:24	23° $\overline{K}$ 12'52	20.80620 AU
retrograde	4680 May 27 02:09	24° $\approx$ 04'08		retrograde	4688 Jun 29 17:59	27° $\overline{K}$ 12'43	
opposition	4680 Aug 11 16:13	22° $\approx$ 04'55	0°-41'-18	min. Earth dist.	4688 Sep 14 11:28	25° $\overline{K}$ 15'56	18.82790 AU
min. Earth dist.	4680 Aug 11 05:40	22° $\approx$ 05'59	18.41227 AU	opposition	4688 Sep 15 06:19	25° $\overline{K}$ 14'03	0°-51'-36
direct	4680 Oct 27 19:45	20° $\approx$ 04'51		direct	4688 Nov 30 18:44	23° $\overline{K}$ 16'27	
conjunction	4681 Feb 12 20:00	24° $\approx$ 11'25	0°-38'-17	conjunction	4689 Mar 17 07:05	27° $\overline{K}$ 14'18	0°-46'-45
minimum elong	4681 Feb 12 20:00	24° $\approx$ 11'25	0°38'18	minimum elong	4689 Mar 17 07:04	27° $\overline{K}$ 14'18	0°46'45
max. Earth dist.	4681 Feb 13 07:33	24° $\approx$ 13'08	20.44088 AU	max. Earth dist.	4689 Mar 18 03:09	27° $\overline{K}$ 17'13	20.84796 AU
retrograde	4681 May 31 12:53	28° $\approx$ 17'33			4689 May 08 09:02	0° $\overline{Y}$	
opposition	4681 Aug 16 08:16	26° $\approx$ 18'22	0°-43'-29	retrograde	4689 Jul 04 02:44	1° $\overline{Y}$ 16'31	
min. Earth dist.	4681 Aug 15 21:07	26° $\approx$ 19'30	18.46932 AU		4689 Sep 01 19:10	30° $\overline{R}$ $\overline{K}$	
direct	4681 Nov 01 10:17	24° $\approx$ 18'36		opposition	4689 Sep 19 17:48	29° $\overline{K}$ 17'54	0°-51'-44
				min. Earth dist.	4689 Sep 18 22:46	29° $\overline{K}$ 19'48	18.86757 AU
				direct	4689 Dec 05 04:25	27° $\overline{K}$ 20'33	
conjunction	4682 Feb 17 05:04	28° $\approx$ 23'50	0°-40'-9		4690 Feb 26 22:29	0° $\overline{Y}$	
minimum elong	4682 Feb 17 05:04	28° $\approx$ 23'50	0°40'09				

conjunction	4690 Mar 21 12:58	1°♈17'35	0°-46'-45	conjunction	4698 Apr 22 07:09	3°♏18'23	0°-38'-49
minimum elong	4690 Mar 21 12:58	1°♈17'35	0°46'47	minimum elong	4698 Apr 22 07:09	3°♏18'23	0°38'50
max. Earth dist.	4690 Mar 22 08:15	1°♈20'23	20.88543 AU	max. Earth dist.	4698 Apr 23 03:29	3°♏21'18	21.02646 AU
retrograde	4690 Jul 08 13:05	5°♈19'32		retrograde	4698 Aug 10 07:10	7°♏19'43	
min. Earth dist.	4690 Sep 23 09:24	3°♈22'50	18.90279 AU	min. Earth dist.	4698 Oct 26 10:18	5°♏22'28	19.02783 AU
opposition	4690 Sep 24 04:42	3°♈20'54	0°-51'-36	opposition	4698 Oct 27 05:45	5°♏20'31	0°-41'-51
direct	4690 Dec 09 13:22	1°♈23'44		direct	4699 Jan 10 22:22	3°♏23'58	
conjunction	4691 Mar 25 18:50	5°♈20'03	0°-46'-32	conjunction	4699 Apr 26 12:42	7°♏17'07	0°-36'-55
minimum elong	4691 Mar 25 18:50	5°♈20'03	0°46'33	minimum elong	4699 Apr 26 12:42	7°♏17'07	0°36'56
max. Earth dist.	4691 Mar 26 15:21	5°♈23'02	20.91812 AU	max. Earth dist.	4699 Apr 27 09:59	7°♏20'10	21.02753 AU
retrograde	4691 Jul 12 21:22	9°♈21'44		retrograde	4699 Aug 14 15:14	11°♏18'39	
opposition	4691 Sep 28 15:15	7°♈23'05	0°-51'-13	opposition	4699 Oct 31 13:38	9°♏19'27	0°-39'-38
min. Earth dist.	4691 Sep 27 19:53	7°♈25'01	18.93294 AU	min. Earth dist.	4699 Oct 30 18:02	9°♏21'25	19.02696 AU
direct	4691 Dec 13 22:17	5°♈26'05		direct	4700 Jan 15 04:58	7°♏22'58	
conjunction	4692 Mar 29 00:12	9°♈21'41	0°-46'-5	conjunction	4700 Apr 30 18:12	11°♏16'07	0°-34'-50
minimum elong	4692 Mar 29 00:12	9°♈21'41	0°46'06	minimum elong	4700 Apr 30 18:12	11°♏16'07	0°34'52
max. Earth dist.	4692 Mar 29 19:46	9°♈24'31	20.94586 AU	max. Earth dist.	4700 May 01 14:07	11°♏18'58	21.02484 AU
retrograde	4692 Jul 16 06:24	13°♈23'10		retrograde	4700 Jul 22 18:31	15°♏	
min. Earth dist.	4692 Oct 01 06:00	11°♈26'23	18.95831 AU	retrograde	4700 Aug 19 00:29	15°♏17'57	
opposition	4692 Oct 02 01:26	11°♈24'26	0°-50'-35	opposition	4700 Sep 15 14:26	15°♏	
direct	4692 Dec 17 06:30	9°♈27'32		opposition	4700 Nov 04 21:35	13°♏18'42	0°-37'-15
conjunction	4693 Apr 02 05:37	13°♈22'31	0°-45'-24	min. Earth dist.	4700 Nov 04 02:51	13°♏20'35	19.02229 AU
minimum elong	4693 Apr 02 05:37	13°♈22'31	0°45'26	direct	4701 Jan 19 09:43	11°♏22'15	
max. Earth dist.	4693 Apr 03 02:29	13°♈25'32	20.96887 AU		4701 Apr 30 11:58	15°♏	
retrograde	4693 Jul 20 14:31	17°♈23'48		conjunction	4701 May 05 00:24	15°♏15'33	0°-32'-35
opposition	4693 Oct 06 11:01	15°♈24'59	0°-49'-42	minimum elong	4701 May 05 00:24	15°♏15'33	0°32'36
min. Earth dist.	4693 Oct 05 15:26	15°♈26'57	18.97908 AU	max. Earth dist.	4701 May 05 20:58	15°♏18'29	21.01806 AU
direct	4693 Dec 21 14:40	13°♈28'10		retrograde	4701 Aug 23 08:48	19°♏17'41	
conjunction	4694 Apr 06 10:41	17°♈22'35	0°-44'-30	min. Earth dist.	4701 Nov 08 10:42	17°♏20'17	19.01324 AU
minimum elong	4694 Apr 06 10:41	17°♈22'35	0°44'31	opposition	4701 Nov 09 05:14	17°♏18'25	0°-34'-40
max. Earth dist.	4694 Apr 07 06:39	17°♈25'28	20.98761 AU	direct	4702 Jan 23 16:02	15°♏21'59	
retrograde	4694 Jul 24 22:31	21°♈23'45		conjunction	4702 May 09 06:51	19°♏15'29	0°-30'-10
opposition	4694 Oct 10 20:15	19°♈24'50	0°-48'-35	minimum elong	4702 May 09 06:51	19°♏15'29	0°30'13
min. Earth dist.	4694 Oct 10 00:43	19°♈26'47	18.99590 AU	max. Earth dist.	4702 May 10 01:32	19°♏18'10	21.00676 AU
direct	4694 Dec 25 21:30	17°♈28'03		retrograde	4702 Aug 27 18:12	23°♏18'00	
conjunction	4695 Apr 10 15:50	21°♈22'02	0°-43'-23	opposition	4702 Nov 13 13:04	21°♏18'41	0°-31'-55
minimum elong	4695 Apr 10 15:50	21°♈22'02	0°43'25	min. Earth dist.	4702 Nov 12 19:58	21°♏20'25	18.99951 AU
max. Earth dist.	4695 Apr 11 13:07	21°♈25'06	21.00245 AU	direct	4703 Jan 27 20:50	19°♏22'13	
retrograde	4695 Jul 29 06:34	25°♈23'07		conjunction	4703 May 13 13:52	23°♏16'02	0°-27'-37
min. Earth dist.	4695 Oct 14 09:07	23°♈26'07	19.00891 AU	minimum elong	4703 May 13 13:52	23°♏16'02	0°27'38
opposition	4695 Oct 15 04:58	23°♈24'07	0°-47'-14	max. Earth dist.	4703 May 14 08:43	23°♏18'44	20.99043 AU
direct	4695 Dec 30 04:59	21°♈27'24		retrograde	4703 Sep 01 03:15	27°♏18'57	
conjunction	4696 Apr 13 20:49	25°♈21'01	0°-42'-4	opposition	4703 Nov 17 20:49	25°♏19'34	0°-29'00
minimum elong	4696 Apr 13 20:49	25°♈21'01	0°42'04	min. Earth dist.	4703 Nov 17 04:08	25°♏21'15	18.98049 AU
max. Earth dist.	4696 Apr 14 17:08	25°♈23'56	21.01382 AU	direct	4704 Feb 01 03:35	23°♏23'01	
retrograde	4696 Aug 01 14:29	29°♈22'08		conjunction	4704 May 16 21:12	27°♏17'11	0°-24'-54
opposition	4696 Oct 18 13:33	27°♈23'03	0°-45'-39	minimum elong	4704 May 16 21:12	27°♏17'11	0°24'56
min. Earth dist.	4696 Oct 17 17:52	27°♈25'01	19.01866 AU	max. Earth dist.	4704 May 17 13:50	27°♏19'34	20.96884 AU
direct	4697 Jan 02 10:32	25°♈26'23		retrograde	4704 Jul 07 14:43	0°♊	
conjunction	4697 Apr 18 01:56	29°♈19'44	0°-40'-32	retrograde	4704 Sep 04 12:36	1°♊20'32	
minimum elong	4697 Apr 18 01:56	29°♈19'44	0°40'34	4704 Nov 04 20:23	30°♏		
max. Earth dist.	4697 Apr 18 23:28	29°♈22'50	21.02184 AU	opposition	4704 Nov 21 04:45	29°♏21'02	0°-25'-56
retrograde	4697 Apr 29 19:12	0°♏		min. Earth dist.	4704 Nov 20 13:47	29°♏22'33	18.95626 AU
opposition	4697 Aug 05 22:38	3°♏20'55		direct	4705 Feb 04 08:34	27°♏24'21	
min. Earth dist.	4697 Oct 22 21:48	1°♏21'47	0°-43'-51		4705 Apr 27 21:15	0°♊	
direct	4697 Nov 29 12:50	30°♏		conjunction	4705 May 21 05:09	1°♊18'56	0°-22'-4
retrograde	4697 Aug 05 22:38	3°♏20'55		minimum elong	4705 May 21 05:08	1°♊18'56	0°22'05
opposition	4697 Oct 22 21:48	1°♏23'47	19.02493 AU	max. Earth dist.	4705 May 21 21:43	1°♊21'18	20.94202 AU
min. Earth dist.	4697 Nov 29 12:50	30°♏		retrograde	4705 Sep 08 22:28	5°♊22'44	
direct	4698 Jan 06 17:34	29°♈25'11		opposition	4705 Nov 25 12:35	3°♊23'04	0°-22'-43
	4698 Feb 12 19:31	0°♏					

min. Earth dist.	4705 Nov 24 22:06	3°II24'32	18.92678 AU	opposition	4712 Dec 23 23:10	1°☾59'41	0°02'17
direct	4706 Feb 08 15:51	1°II26'13		min. Earth dist.	4712 Dec 23 16:51	2°☾00'20	18.62306 AU
				direct	4713 Mar 08 15:55	0°☾01'03	
conjunction	4706 May 25 13:23	5°II21'17	0°-19'-6				
minimum elong	4706 May 25 13:23	5°II21'17	0°19'08	conjunction	4713 Jun 23 15:12	4°☾01'47	0°03'48
max. Earth dist.	4706 May 26 03:38	5°II23'19	20.91024 AU	minimum elong	4713 Jun 23 15:12	4°☾01'47	0°03'47
retrograde	4706 Sep 13 07:55	9°II25'33		behind sun begin	4713 Jun 23 08:34	4°☾00'51	
opposition	4706 Nov 29 20:26	7°II25'43	0°-19'-23	behind sun end	4713 Jun 23 21:50	4°☾02'43	
min. Earth dist.	4706 Nov 29 07:48	7°II27'00	18.89277 AU	max. Earth dist.	4713 Jun 23 22:23	4°☾02'48	20.59711 AU
direct	4707 Feb 12 21:20	5°II28'38		retrograde	4713 Oct 12 18:53	8°☾10'39	
				opposition	4713 Dec 28 08:40	6°☾09'42	0°06'01
conjunction	4707 May 29 22:13	9°II24'15	0°-16'-3	min. Earth dist.	4713 Dec 28 02:40	6°☾10'19	18.57039 AU
minimum elong	4707 May 29 22:13	9°II24'15	0°16'04	direct	4714 Mar 13 01:39	4°☾10'49	
max. Earth dist.	4707 May 30 12:27	9°II26'18	20.87419 AU				
retrograde	4707 Sep 17 18:28	13°II29'02		conjunction	4714 Jun 28 04:38	8°☾12'42	0°07'09
opposition	4707 Dec 04 04:21	11°II29'01	0°-15'-57	minimum elong	4714 Jun 28 04:37	8°☾12'41	0°07'09
min. Earth dist.	4707 Dec 03 16:00	11°II30'16	18.85475 AU	behind sun begin	4714 Jun 27 22:27	8°☾11'49	
direct	4708 Feb 17 04:27	9°II31'41		behind sun end	4714 Jun 28 10:48	8°☾13'34	
				max. Earth dist.	4714 Jun 28 09:25	8°☾13'22	20.54346 AU
conjunction	4708 Jun 02 07:15	13°II27'56	0°-12'-54	retrograde	4714 Oct 17 07:30	12°☾22'23	
minimum elong	4708 Jun 02 07:15	13°II27'56	0°12'55	opposition	4715 Jan 01 18:41	10°☾21'20	0°09'46
behind sun begin	4708 Jun 02 03:12	13°II27'22		min. Earth dist.	4715 Jan 01 15:03	10°☾21'43	18.51576 AU
behind sun end	4708 Jun 02 11:18	13°II28'30		direct	4715 Mar 17 09:21	8°☾22'12	
max. Earth dist.	4708 Jun 02 19:21	13°II29'40	20.83450 AU				
retrograde	4708 Sep 21 04:49	17°II33'18		conjunction	4715 Jul 02 19:06	12°☾25'18	0°10'30
opposition	4708 Dec 07 12:33	15°II33'05	0°-12'-25	minimum elong	4715 Jul 02 19:06	12°☾25'18	0°10'30
min. Earth dist.	4708 Dec 07 01:59	15°II34'09	18.81348 AU	behind sun begin	4715 Jul 02 13:54	12°☾24'33	
direct	4709 Feb 20 10:40	13°II35'29		behind sun end	4715 Jul 03 00:18	12°☾26'02	
				max. Earth dist.	4715 Jul 02 23:12	12°☾25'53	20.48780 AU
conjunction	4709 Jun 06 17:12	17°II32'28	0°-9'-41	retrograde	4715 Oct 21 23:43	16°☾35'51	
minimum elong	4709 Jun 06 17:13	17°II32'28	0°09'43	opposition	4716 Jan 06 05:08	14°☾34'42	0°13'29
behind sun begin	4709 Jun 06 11:44	17°II31'42		min. Earth dist.	4716 Jan 06 02:02	14°☾35'02	18.45891 AU
behind sun end	4709 Jun 06 22:41	17°II33'14		direct	4716 Mar 20 20:28	12°☾35'18	
max. Earth dist.	4709 Jun 07 05:18	17°II34'12	20.79174 AU				
retrograde	4709 Sep 25 16:15	21°II38'25		conjunction	4716 Jul 06 10:18	16°☾39'39	0°13'50
opposition	4709 Dec 11 20:38	19°II38'01	0°-8'-49	minimum elong	4716 Jul 06 10:18	16°☾39'39	0°13'49
min. Earth dist.	4709 Dec 11 10:18	19°II39'05	18.76926 AU	behind sun begin	4716 Jul 06 06:54	16°☾39'10	
direct	4710 Feb 24 17:55	17°II40'10		behind sun end	4716 Jul 06 13:41	16°☾40'08	
				max. Earth dist.	4716 Jul 06 11:47	16°☾39'52	20.42972 AU
conjunction	4710 Jun 11 03:37	21°II37'58	0°-6'-24	retrograde	4716 Oct 25 13:25	20°☾51'05	
minimum elong	4710 Jun 11 03:37	21°II37'57	0°06'25	opposition	4717 Jan 09 16:17	18°☾49'49	0°17'09
behind sun begin	4710 Jun 10 21:19	21°II37'04		min. Earth dist.	4717 Jan 09 15:48	18°☾49'52	18.39964 AU
behind sun end	4710 Jun 11 09:54	21°II38'50		direct	4717 Mar 25 05:38	16°☾50'05	
max. Earth dist.	4710 Jun 11 13:25	21°II39'21	20.74626 AU				
retrograde	4710 Sep 30 03:32	25°II44'35		conjunction	4717 Jul 11 02:40	20°☾55'45	0°17'06
opposition	4710 Dec 16 05:13	23°II44'00	0°-5'-9	minimum elong	4717 Jul 11 02:40	20°☾55'45	0°17'07
min. Earth dist.	4710 Dec 15 20:44	23°II44'52	18.72263 AU	max. Earth dist.	4717 Jul 11 02:55	20°☾55'47	20.36922 AU
direct	4711 Mar 01 00:35	21°II45'53		retrograde	4717 Oct 30 06:27	25°☾08'01	
				opposition	4718 Jan 14 03:41	23°☾06'37	0°20'45
conjunction	4711 Jun 15 14:41	25°II44'34	0°-3'-5	min. Earth dist.	4718 Jan 14 03:53	23°☾06'36	18.33788 AU
minimum elong	4711 Jun 15 14:41	25°II44'34	0°03'07	direct	4718 Mar 29 18:25	21°☾06'32	
behind sun begin	4711 Jun 15 08:01	25°II43'38					
behind sun end	4711 Jun 15 21:20	25°II45'30		conjunction	4718 Jul 15 19:42	25°☾13'33	0°20'19
max. Earth dist.	4711 Jun 16 00:26	25°II45'58	20.69851 AU	minimum elong	4718 Jul 15 19:42	25°☾13'33	0°20'18
retrograde	4711 Oct 04 16:17	29°II51'53		max. Earth dist.	4718 Jul 15 17:21	25°☾13'12	20.30633 AU
opposition	4711 Dec 20 13:58	27°II51'10	0°-1'-26	retrograde	4718 Nov 03 20:58	29°☾26'39	
min. Earth dist.	4711 Dec 20 05:37	27°II52'02	18.67376 AU	opposition	4719 Jan 18 15:52	27°☾25'06	0°24'16
direct	4712 Mar 04 08:58	25°II52'48		min. Earth dist.	4719 Jan 18 18:39	27°☾24'48	18.27409 AU
asc. node	4712 May 12 19:21	27°II48'32		direct	4719 Apr 03 05:14	25°☾24'38	
conjunction	4712 Jun 19 02:29	29°II52'27	0°00'21	conjunction	4719 Jul 20 13:26	29°☾32'59	0°23'25
minimum elong	4712 Jun 19 02:27	29°II52'27	0°00'21	minimum elong	4719 Jul 20 13:26	29°☾32'59	0°23'25
behind sun begin	4712 Jun 18 19:47	29°II51'31		max. Earth dist.	4719 Jul 20 09:50	29°☾32'27	20.24182 AU
behind sun end	4712 Jun 19 09:07	29°II53'24			4719 Jul 28 04:17	0°♂	
max. Earth dist.	4712 Jun 19 09:57	29°II53'31	20.64872 AU	retrograde	4719 Nov 08 14:35	3°♂46'56	
	4712 Jun 21 06:29	0°☾		opposition	4720 Jan 23 04:22	1°♂45'11	0°27'40
retrograde	4712 Oct 08 04:16	4°☾00'32		min. Earth dist.	4720 Jan 23 07:39	1°♂44'51	18.20893 AU

	4720 Mar 13 07:28	30° $\mathbb{R}\mathbb{E}$		minimum elong	4727 Aug 26 15:51	5° $\mathbb{M}$ 07'59	0°42'30
direct	4720 Apr 06 19:37	29° $\mathbb{E}$ 44'20		max. Earth dist.	4727 Aug 26 00:31	5° $\mathbb{M}$ 05'39	19.74756 AU
	4720 May 01 02:34	0° $\mathbb{Q}$		retrograde	4727 Dec 14 20:59	9° $\mathbb{M}$ 28'08	
				opposition	4728 Feb 27 05:34	7° $\mathbb{M}$ 25'27	0°48'05
conjunction	4720 Jul 24 08:05	3° $\mathbb{Q}$ 54'03	0°26'25	min. Earth dist.	4728 Feb 27 18:06	7° $\mathbb{M}$ 24'05	17.72170 AU
minimum elong	4720 Jul 24 08:05	3° $\mathbb{Q}$ 54'03	0°26'25	direct	4728 May 12 04:45	5° $\mathbb{M}$ 21'39	
max. Earth dist.	4720 Jul 24 02:19	3° $\mathbb{Q}$ 53'12	20.17619 AU				
retrograde	4720 Nov 12 05:52	8° $\mathbb{Q}$ 08'50		conjunction	4728 Aug 30 16:43	9° $\mathbb{M}$ 42'41	0°43'53
opposition	4721 Jan 26 17:26	6° $\mathbb{Q}$ 06'54	0°30'56	minimum elong	4728 Aug 30 16:43	9° $\mathbb{M}$ 42'41	0°43'52
min. Earth dist.	4721 Jan 26 23:10	6° $\mathbb{Q}$ 06'17	18.14315 AU	max. Earth dist.	4728 Aug 30 01:04	9° $\mathbb{M}$ 40'18	19.69622 AU
direct	4721 Apr 11 08:12	4° $\mathbb{Q}$ 05'37		retrograde	4728 Dec 18 18:07	14° $\mathbb{M}$ 03'29	
				opposition	4729 Mar 02 23:42	12° $\mathbb{M}$ 00'48	0°49'30
conjunction	4721 Jul 29 03:35	8° $\mathbb{Q}$ 16'45	0°29'17	min. Earth dist.	4729 Mar 03 13:47	11° $\mathbb{M}$ 59'16	17.67170 AU
minimum elong	4721 Jul 29 03:35	8° $\mathbb{Q}$ 16'45	0°29'16	direct	4729 May 16 23:16	9° $\mathbb{M}$ 56'44	
max. Earth dist.	4721 Jul 28 20:26	8° $\mathbb{Q}$ 15'41	20.11043 AU				
retrograde	4721 Nov 17 00:09	12° $\mathbb{Q}$ 32'20		conjunction	4729 Sep 04 18:07	14° $\mathbb{M}$ 19'05	0°45'00
opposition	4722 Jan 31 06:57	10° $\mathbb{Q}$ 30'13	0°34'02	minimum elong	4729 Sep 04 18:07	14° $\mathbb{M}$ 19'05	0°45'00
min. Earth dist.	4722 Jan 31 13:04	10° $\mathbb{Q}$ 29'34	18.07751 AU	max. Earth dist.	4729 Sep 04 00:12	14° $\mathbb{M}$ 16'21	19.64752 AU
direct	4722 Apr 15 23:45	8° $\mathbb{Q}$ 28'31		retrograde	4729 Dec 23 17:08	18° $\mathbb{M}$ 40'29	
				opposition	4730 Mar 07 18:36	16° $\mathbb{M}$ 37'47	0°50'36
conjunction	4722 Aug 02 23:41	12° $\mathbb{Q}$ 41'04	0°31'59	min. Earth dist.	4730 Mar 08 09:28	16° $\mathbb{M}$ 36'10	17.62432 AU
minimum elong	4722 Aug 02 23:41	12° $\mathbb{Q}$ 41'03	0°31'59	direct	4730 May 21 20:07	14° $\mathbb{M}$ 33'28	
max. Earth dist.	4722 Aug 02 14:56	12° $\mathbb{Q}$ 39'45	20.04499 AU				
	4722 Sep 12 19:16	15° $\mathbb{Q}$		conjunction	4730 Sep 09 20:07	18° $\mathbb{M}$ 57'04	0°45'51
retrograde	4722 Nov 21 16:39	16° $\mathbb{Q}$ 57'27		minimum elong	4730 Sep 09 20:07	18° $\mathbb{M}$ 57'04	0°45'51
	4723 Feb 03 00:09	15° $\mathbb{R}\mathbb{Q}$		max. Earth dist.	4730 Sep 09 02:08	18° $\mathbb{M}$ 54'18	19.60123 AU
opposition	4723 Feb 04 21:12	14° $\mathbb{Q}$ 55'10	0°36'57	retrograde	4730 Dec 28 15:03	23° $\mathbb{M}$ 18'59	
min. Earth dist.	4723 Feb 05 05:25	14° $\mathbb{Q}$ 54'17	18.01268 AU	opposition	4731 Mar 12 14:15	21° $\mathbb{M}$ 16'16	0°51'24
direct	4723 Apr 20 14:17	12° $\mathbb{Q}$ 53'03		min. Earth dist.	4731 Mar 13 06:14	21° $\mathbb{M}$ 14'31	17.57932 AU
	4723 Jul 01 23:53	15° $\mathbb{Q}$		direct	4731 May 26 17:07	19° $\mathbb{M}$ 11'41	
conjunction	4723 Aug 07 20:35	17° $\mathbb{Q}$ 07'01	0°34'30	conjunction	4731 Sep 14 22:33	23° $\mathbb{M}$ 36'26	0°46'23
minimum elong	4723 Aug 07 20:35	17° $\mathbb{Q}$ 07'01	0°34'30	minimum elong	4731 Sep 14 22:33	23° $\mathbb{M}$ 36'26	0°46'23
max. Earth dist.	4723 Aug 07 10:25	17° $\mathbb{Q}$ 05'30	19.98091 AU	max. Earth dist.	4731 Sep 14 02:16	23° $\mathbb{M}$ 33'19	19.55758 AU
retrograde	4723 Nov 26 11:50	21° $\mathbb{Q}$ 24'12		retrograde	4732 Jan 02 13:45	27° $\mathbb{M}$ 58'49	
opposition	4724 Feb 09 11:51	19° $\mathbb{Q}$ 21'46	0°39'40	opposition	4732 Mar 16 10:21	25° $\mathbb{M}$ 56'03	0°51'51
min. Earth dist.	4724 Feb 09 20:17	19° $\mathbb{Q}$ 20'52	17.94950 AU	min. Earth dist.	4732 Mar 17 03:16	25° $\mathbb{M}$ 54'13	17.53716 AU
direct	4724 Apr 24 06:56	17° $\mathbb{Q}$ 19'15		direct	4732 May 30 15:17	23° $\mathbb{M}$ 51'12	
				max. Earth dist.	4732 Sep 18 05:29	28° $\mathbb{M}$ 13'56	19.51683 AU
conjunction	4724 Aug 11 18:18	21° $\mathbb{Q}$ 34'39	0°36'50	conjunction	4732 Sep 19 01:37	28° $\mathbb{M}$ 17'02	0°46'38
minimum elong	4724 Aug 11 18:18	21° $\mathbb{Q}$ 34'39	0°36'50	minimum elong	4732 Sep 19 01:37	28° $\mathbb{M}$ 17'02	0°46'38
max. Earth dist.	4724 Aug 11 07:03	21° $\mathbb{Q}$ 32'57	19.91860 AU		4732 Oct 17 12:45	0° $\mathbb{Q}$	
retrograde	4724 Nov 30 05:57	25° $\mathbb{Q}$ 52'36		retrograde	4733 Jan 06 12:38	2° $\mathbb{Q}$ 39'47	
opposition	4725 Feb 13 03:21	23° $\mathbb{Q}$ 50'03	0°42'09	opposition	4733 Mar 21 07:09	0° $\mathbb{Q}$ 37'00	0°51'57
min. Earth dist.	4725 Feb 13 13:37	23° $\mathbb{Q}$ 48'57	17.88837 AU	min. Earth dist.	4733 Mar 22 00:42	0° $\mathbb{Q}$ 35'05	17.49795 AU
direct	4725 Apr 28 22:41	21° $\mathbb{Q}$ 47'10			4733 Apr 04 14:52	30° $\mathbb{R}\mathbb{M}$	
				direct	4733 Jun 04 14:46	28° $\mathbb{M}$ 31'53	
conjunction	4725 Aug 16 16:47	26° $\mathbb{Q}$ 03'59	0°38'57		4733 Aug 02 16:16	0° $\mathbb{Q}$	
minimum elong	4725 Aug 16 16:47	26° $\mathbb{Q}$ 03'59	0°38'57	max. Earth dist.	4733 Sep 23 06:42	2° $\mathbb{Q}$ 55'16	19.47937 AU
max. Earth dist.	4725 Aug 16 03:51	26° $\mathbb{Q}$ 02'02	19.85876 AU				
	4725 Nov 05 20:31	0° $\mathbb{M}$		conjunction	4733 Sep 24 04:44	2° $\mathbb{Q}$ 58'41	0°46'34
retrograde	4725 Dec 05 02:49	0° $\mathbb{M}$ 22'42		minimum elong	4733 Sep 24 04:44	2° $\mathbb{Q}$ 58'41	0°46'33
	4726 Jan 03 15:26	30° $\mathbb{R}\mathbb{Q}$		retrograde	4734 Jan 11 10:54	7° $\mathbb{Q}$ 21'44	
opposition	4726 Feb 17 19:18	28° $\mathbb{Q}$ 20'04	0°44'23	opposition	4734 Mar 26 04:25	5° $\mathbb{Q}$ 18'55	0°51'43
min. Earth dist.	4726 Feb 18 05:46	28° $\mathbb{Q}$ 18'56	17.82991 AU	min. Earth dist.	4734 Mar 26 22:54	5° $\mathbb{Q}$ 16'53	17.46247 AU
direct	4726 May 03 16:45	26° $\mathbb{Q}$ 16'50		direct	4734 Jun 09 14:03	3° $\mathbb{Q}$ 13'33	
	4726 Aug 11 23:46	0° $\mathbb{M}$		max. Earth dist.	4734 Sep 28 10:43	7° $\mathbb{Q}$ 37'53	19.44590 AU
conjunction	4726 Aug 21 16:04	0° $\mathbb{M}$ 35'06	0°40'50	conjunction	4734 Sep 29 08:12	7° $\mathbb{Q}$ 41'13	0°46'10
minimum elong	4726 Aug 21 16:04	0° $\mathbb{M}$ 35'05	0°40'50	minimum elong	4734 Sep 29 08:12	7° $\mathbb{Q}$ 41'13	0°46'11
max. Earth dist.	4726 Aug 21 02:34	0° $\mathbb{M}$ 33'03	19.80162 AU	retrograde	4735 Jan 16 10:28	12° $\mathbb{Q}$ 04'30	
retrograde	4726 Dec 09 22:31	4° $\mathbb{M}$ 54'31		opposition	4735 Mar 31 02:10	10° $\mathbb{Q}$ 01'39	0°51'07
opposition	4727 Feb 22 12:09	2° $\mathbb{M}$ 51'52	0°46'22	min. Earth dist.	4735 Mar 31 20:35	9° $\mathbb{Q}$ 59'38	17.43113 AU
min. Earth dist.	4727 Feb 23 00:12	2° $\mathbb{M}$ 50'33	17.77430 AU	direct	4735 Jun 14 15:23	7° $\mathbb{Q}$ 56'04	
direct	4727 May 08 09:27	0° $\mathbb{M}$ 48'20					
conjunction	4727 Aug 26 15:51	5° $\mathbb{M}$ 07'59	0°42'29	conjunction	4735 Oct 04 11:35	12° $\mathbb{Q}$ 24'29	0°45'28

minimum elong	4735 Oct 04 11:35	12°♂24'29	0°45'29	direct	4743 Jul 23 06:14	15°♂52'55	
max. Earth dist.	4735 Oct 03 12:56	12°♂20'58	19.41688 AU				
retrograde	4736 Jan 21 08:35	16°♂47'55		conjunction	4743 Nov 12 12:08	20°♂23'16	0°29'33
opposition	4736 Apr 04 00:26	14°♂45'03	0°50'11	minimum elong	4743 Nov 12 12:08	20°♂23'16	0°29'33
min. Earth dist.	4736 Apr 04 19:42	14°♂42'57	17.40463 AU	max. Earth dist.	4743 Nov 11 18:16	20°♂20'28	19.39052 AU
direct	4736 Jun 18 15:40	12°♂39'15		retrograde	4744 Feb 28 06:21	24°♂45'26	
				opposition	4744 May 11 22:44	22°♂43'33	0°31'16
conjunction	4736 Oct 08 15:13	17°♂08'20	0°44'28	min. Earth dist.	4744 May 12 14:56	22°♂41'48	17.40052 AU
minimum elong	4736 Oct 08 15:13	17°♂08'20	0°44'27	direct	4744 Jul 27 08:42	20°♂37'55	
max. Earth dist.	4736 Oct 07 17:14	17°♂04'55	19.39294 AU				
retrograde	4737 Jan 25 08:35	21°♂31'51		conjunction	4744 Nov 16 13:48	25°♂07'54	0°26'28
opposition	4737 Apr 08 22:56	19°♂28'59	0°48'53	minimum elong	4744 Nov 16 13:48	25°♂07'54	0°26'29
min. Earth dist.	4737 Apr 09 17:31	19°♂26'57	17.38334 AU	max. Earth dist.	4744 Nov 15 19:40	25°♂05'03	19.41115 AU
direct	4737 Jun 23 18:30	17°♂23'02		retrograde	4745 Mar 04 05:21	29°♂29'35	
				opposition	4745 May 16 23:25	27°♂27'50	0°27'45
conjunction	4737 Oct 13 18:45	21°♂52'39	0°43'09	min. Earth dist.	4745 May 17 14:08	27°♂26'15	17.42318 AU
minimum elong	4737 Oct 13 18:45	21°♂52'39	0°43'09	direct	4745 Aug 01 12:29	25°♂22'20	
max. Earth dist.	4737 Oct 12 20:27	21°♂49'10	19.37449 AU				
retrograde	4738 Jan 30 06:54	26°♂16'10		conjunction	4745 Nov 21 15:05	29°♂51'49	0°23'14
opposition	4738 Apr 13 22:06	24°♂13'21	0°47'16	minimum elong	4745 Nov 21 15:05	29°♂51'50	0°23'15
min. Earth dist.	4738 Apr 14 17:16	24°♂11'16	17.36800 AU	max. Earth dist.	4745 Nov 20 22:54	29°♂49'18	19.43580 AU
direct	4738 Jun 28 19:12	22°♂07'18			4745 Nov 23 19:10	0°♂	
				retrograde	4746 Mar 09 03:24	4°♂12'56	
conjunction	4738 Oct 18 22:01	26°♂37'19	0°41'32	opposition	4746 May 22 00:16	2°♂11'20	0°24'02
minimum elong	4738 Oct 18 22:01	26°♂37'19	0°41'32	min. Earth dist.	4746 May 22 14:51	2°♂09'46	17.44972 AU
max. Earth dist.	4738 Oct 18 00:27	26°♂33'57	19.36226 AU	direct	4746 Aug 06 15:45	0°♂06'00	
	4738 Dec 18 23:01	0°♂					
retrograde	4739 Feb 04 07:30	1°♂00'48		conjunction	4746 Nov 26 15:24	4°♂34'50	0°19'50
	4739 Mar 25 02:49	30°♂		minimum elong	4746 Nov 26 15:25	4°♂34'50	0°19'50
opposition	4739 Apr 18 21:28	28°♂58'04	0°45'19	max. Earth dist.	4746 Nov 25 23:06	4°♂32'17	19.46432 AU
min. Earth dist.	4739 Apr 19 15:17	28°♂56'07	17.35883 AU	retrograde	4747 Mar 14 01:19	8°♂55'20	
direct	4739 Jul 03 22:15	26°♂51'58		opposition	4747 May 27 00:51	6°♂53'51	0°20'10
	4739 Oct 01 19:47	0°♂		min. Earth dist.	4747 May 27 14:03	6°♂52'26	17.48008 AU
max. Earth dist.	4739 Oct 23 04:19	1°♂19'01	19.35627 AU	direct	4747 Aug 11 19:21	4°♂48'38	
conjunction	4739 Oct 24 01:21	1°♂22'18	0°39'39	conjunction	4747 Dec 01 15:21	9°♂16'44	0°16'19
minimum elong	4739 Oct 24 01:21	1°♂22'18	0°39'39	minimum elong	4747 Dec 01 15:21	9°♂16'44	0°16'20
retrograde	4740 Feb 09 06:39	5°♂45'39		max. Earth dist.	4747 Dec 01 01:12	9°♂14'32	19.49652 AU
opposition	4740 Apr 22 21:10	3°♂43'03	0°43'03	retrograde	4748 Mar 17 22:21	13°♂36'31	
min. Earth dist.	4740 Apr 23 15:32	3°♂41'03	17.35603 AU	opposition	4748 May 31 01:13	11°♂35'10	0°16'11
direct	4740 Jul 07 23:05	1°♂36'58		min. Earth dist.	4748 May 31 13:50	11°♂33'49	17.51400 AU
max. Earth dist.	4740 Oct 27 07:50	6°♂04'17	19.35664 AU	direct	4748 Aug 15 22:18	9°♂30'07	
conjunction	4740 Oct 28 04:30	6°♂07'31	0°37'29	conjunction	4748 Dec 05 14:18	13°♂57'20	0°12'43
minimum elong	4740 Oct 28 04:30	6°♂07'31	0°37'30	minimum elong	4748 Dec 05 14:18	13°♂57'20	0°12'43
retrograde	4741 Feb 13 07:34	10°♂30'41		behind sun begin	4748 Dec 05 10:05	13°♂56'41	
opposition	4741 Apr 27 21:08	8°♂28'15	0°40'30	behind sun end	4748 Dec 05 18:30	13°♂57'58	
min. Earth dist.	4741 Apr 28 14:01	8°♂26'25	17.35928 AU	max. Earth dist.	4748 Dec 05 00:20	13°♂55'09	19.53240 AU
direct	4741 Jul 13 01:53	6°♂22'14		retrograde	4749 Mar 22 19:25	18°♂16'22	
max. Earth dist.	4741 Nov 01 11:55	10°♂49'49	19.36273 AU	opposition	4749 Jun 05 01:26	16°♂15'06	0°12'07
				min. Earth dist.	4749 Jun 05 12:42	16°♂13'54	17.55179 AU
conjunction	4741 Nov 02 07:20	10°♂52'52	0°35'04	direct	4749 Aug 21 00:24	14°♂10'12	
minimum elong	4741 Nov 02 07:20	10°♂52'52	0°35'04				
	4742 Jan 25 13:47	15°♂		conjunction	4749 Dec 10 12:22	18°♂36'27	0°09'02
retrograde	4742 Feb 18 07:02	15°♂15'47		minimum elong	4749 Dec 10 12:22	18°♂36'27	0°09'03
	4742 Mar 14 07:22	15°♂		behind sun begin	4749 Dec 10 06:42	18°♂35'35	
opposition	4742 May 02 21:34	13°♂13'32	0°37'40	behind sun end	4749 Dec 10 18:02	18°♂37'18	
min. Earth dist.	4742 May 03 14:55	13°♂11'39	17.36811 AU	max. Earth dist.	4749 Dec 10 00:56	18°♂34'40	19.57213 AU
direct	4742 Jul 18 03:07	11°♂07'38		retrograde	4750 Mar 27 15:57	22°♂54'40	
	4742 Oct 28 06:03	15°♂		opposition	4750 Jun 10 01:23	20°♂53'31	0°07'59
				min. Earth dist.	4750 Jun 10 11:16	20°♂52'28	17.59337 AU
conjunction	4742 Nov 07 09:51	15°♂38'11	0°32'25	direct	4750 Aug 26 02:28	18°♂48'49	
minimum elong	4742 Nov 07 09:51	15°♂38'11	0°32'26				
max. Earth dist.	4742 Nov 06 14:25	15°♂35'08	19.37426 AU	conjunction	4750 Dec 15 09:31	23°♂13'58	0°05'20
retrograde	4743 Feb 23 07:28	20°♂00'47		minimum elong	4750 Dec 15 09:31	23°♂13'58	0°05'21
opposition	4743 May 07 21:57	17°♂58'42	0°34'35	behind sun begin	4750 Dec 15 03:06	23°♂13'00	
min. Earth dist.	4743 May 08 13:50	17°♂56'59	17.38207 AU	behind sun end	4750 Dec 15 15:56	23°♂14'57	

max. Earth dist.	4750 Dec 14 22:49	23° $\overline{\text{A}}$ 12'19	19.61578 AU	conjunction	4758 Jan 15 14:09	24° $\overline{\text{B}}$ 52'46	0°-19'-52
retrograde	4751 Apr 01 11:42	27° $\overline{\text{A}}$ 31'23		minimum elong	4758 Jan 15 14:09	24° $\overline{\text{B}}$ 52'46	0°19'52
opposition	4751 Jun 15 00:46	25° $\overline{\text{A}}$ 30'20	0°03'49	max. Earth dist.	4758 Jan 15 15:36	24° $\overline{\text{B}}$ 52'59	20.01601 AU
min. Earth dist.	4751 Jun 15 09:22	25° $\overline{\text{A}}$ 29'26	17.63917 AU	retrograde	4758 May 02 21:00	29° $\overline{\text{B}}$ 04'25	
direct	4751 Aug 31 02:36	23° $\overline{\text{A}}$ 25'50		opposition	4758 Jul 17 09:38	27° $\overline{\text{B}}$ 04'42	0°-23'-50
				min. Earth dist.	4758 Jul 17 06:47	27° $\overline{\text{B}}$ 05'00	18.04745 AU
conjunction	4751 Dec 20 05:57	27° $\overline{\text{A}}$ 49'53	0°01'35	direct	4758 Oct 02 15:49	25° $\overline{\text{B}}$ 02'47	
minimum elong	4751 Dec 20 05:56	27° $\overline{\text{A}}$ 49'53	0°01'35				
behind sun begin	4751 Dec 19 23:19	27° $\overline{\text{A}}$ 48'53		conjunction	4759 Jan 20 04:49	29° $\overline{\text{B}}$ 17'47	0°-23'-4
behind sun end	4751 Dec 20 12:33	27° $\overline{\text{A}}$ 50'53		minimum elong	4759 Jan 20 04:49	29° $\overline{\text{B}}$ 17'47	0°23'05
max. Earth dist.	4751 Dec 19 21:43	27° $\overline{\text{A}}$ 48'38	19.66365 AU	max. Earth dist.	4759 Jan 20 07:52	29° $\overline{\text{B}}$ 18'15	20.07914 AU
	4752 Jan 25 16:23	0° $\overline{\text{B}}$			4759 Jan 31 18:36	0° $\approx$	
retrograde	4752 Apr 05 07:52	2° $\overline{\text{B}}$ 06'27		retrograde	4759 May 07 11:35	3° $\approx$ 28'36	
desc. node	4752 May 19 12:56	1° $\overline{\text{B}}$ 17'36		opposition	4759 Jul 22 05:27	1° $\approx$ 29'03	0°-27'-18
opposition	4752 Jun 18 23:56	0° $\overline{\text{B}}$ 05'33	0°00'-19	min. Earth dist.	4759 Jul 22 02:25	1° $\approx$ 29'22	18.11050 AU
min. Earth dist.	4752 Jun 19 06:31	0° $\overline{\text{B}}$ 04'51	17.68895 AU		4759 Aug 31 16:42	30° $\overline{\text{R}}$ $\overline{\text{B}}$	
	4752 Jun 21 04:31	30° $\overline{\text{R}}$ $\overline{\text{A}}$		direct	4759 Oct 07 10:14	29° $\overline{\text{B}}$ 27'29	
direct	4752 Sep 04 03:46	28° $\overline{\text{A}}$ 01'20			4759 Nov 12 05:13	0° $\approx$	
	4752 Nov 13 02:09	0° $\overline{\text{B}}$					
conjunction	4752 Dec 24 01:21	2° $\overline{\text{B}}$ 24'11	0°-2'-15	conjunction	4760 Jan 24 18:40	3° $\approx$ 41'06	0°-26'-7
minimum elong	4752 Dec 24 01:19	2° $\overline{\text{B}}$ 24'11	0°02'15	minimum elong	4760 Jan 24 18:40	3° $\approx$ 41'06	0°26'07
behind sun begin	4752 Dec 23 18:42	2° $\overline{\text{B}}$ 23'11		max. Earth dist.	4760 Jan 24 22:36	3° $\approx$ 41'42	20.14189 AU
behind sun end	4752 Dec 24 07:56	2° $\overline{\text{B}}$ 25'11		retrograde	4760 May 11 03:54	7° $\approx$ 51'06	
max. Earth dist.	4752 Dec 23 18:19	2° $\overline{\text{B}}$ 23'07	19.71547 AU	opposition	4760 Jul 26 00:42	5° $\approx$ 51'41	0°-30'-35
retrograde	4753 Apr 10 02:24	6° $\overline{\text{B}}$ 39'56		min. Earth dist.	4760 Jul 25 19:20	5° $\approx$ 52'14	18.17279 AU
opposition	4753 Jun 23 22:45	4° $\overline{\text{B}}$ 39'12	0°-4'-27	direct	4760 Oct 11 07:11	3° $\approx$ 50'28	
min. Earth dist.	4753 Jun 24 04:07	4° $\overline{\text{B}}$ 38'38	17.74276 AU				
direct	4753 Sep 09 01:56	2° $\overline{\text{B}}$ 35'19		conjunction	4761 Jan 28 07:39	8° $\approx$ 02'40	0°-29'00
				minimum elong	4761 Jan 28 07:38	8° $\approx$ 02'40	0°29'01
conjunction	4753 Dec 28 19:58	6° $\overline{\text{B}}$ 56'56	0°-5'-56	max. Earth dist.	4761 Jan 28 13:23	8° $\approx$ 03'32	20.20360 AU
minimum elong	4753 Dec 28 19:58	6° $\overline{\text{B}}$ 56'56	0°05'57	retrograde	4761 May 15 17:08	12° $\approx$ 11'52	
behind sun begin	4753 Dec 28 13:40	6° $\overline{\text{B}}$ 55'59		opposition	4761 Jul 30 19:30	10° $\approx$ 12'31	0°-33'-41
behind sun end	4753 Dec 29 02:16	6° $\overline{\text{B}}$ 57'54		min. Earth dist.	4761 Jul 30 13:55	10° $\approx$ 13'05	18.23401 AU
max. Earth dist.	4753 Dec 28 15:15	6° $\overline{\text{B}}$ 56'14	19.77112 AU	direct	4761 Oct 16 00:41	8° $\approx$ 11'37	
retrograde	4754 Apr 14 22:26	11° $\overline{\text{B}}$ 11'51					
opposition	4754 Jun 28 20:58	9° $\overline{\text{B}}$ 11'20	0°-8'-32	conjunction	4762 Feb 01 19:49	12° $\approx$ 22'23	0°-31'-42
min. Earth dist.	4754 Jun 29 00:04	9° $\overline{\text{B}}$ 11'01	17.79991 AU	minimum elong	4762 Feb 01 19:49	12° $\approx$ 22'23	0°31'42
direct	4754 Sep 14 02:00	7° $\overline{\text{B}}$ 07'49		max. Earth dist.	4762 Feb 02 02:15	12° $\approx$ 23'22	20.26430 AU
					4762 Mar 20 20:02	15° $\approx$	
conjunction	4755 Jan 02 13:41	11° $\overline{\text{B}}$ 28'11	0°-9'-33	retrograde	4762 May 20 07:41	16° $\approx$ 30'47	
minimum elong	4755 Jan 02 13:41	11° $\overline{\text{B}}$ 28'11	0°09'33		4762 Jul 23 19:13	15° $\overline{\text{R}}$ $\approx$	
behind sun begin	4755 Jan 02 08:11	11° $\overline{\text{B}}$ 27'21		opposition	4762 Aug 04 13:16	14° $\approx$ 31'30	0°-36'-34
behind sun end	4755 Jan 02 19:11	11° $\overline{\text{B}}$ 29'01		min. Earth dist.	4762 Aug 04 05:25	14° $\approx$ 32'18	18.29412 AU
max. Earth dist.	4755 Jan 02 10:25	11° $\overline{\text{B}}$ 27'42	19.82970 AU	direct	4762 Oct 20 19:10	12° $\approx$ 30'52	
retrograde	4755 Apr 19 15:42	15° $\overline{\text{B}}$ 42'17			4763 Jan 08 18:26	15° $\approx$	
opposition	4755 Jul 03 18:53	13° $\overline{\text{B}}$ 41'59	0°-12'-31	conjunction	4763 Feb 06 07:14	16° $\approx$ 40'14	0°-34'-12
min. Earth dist.	4755 Jul 03 21:12	13° $\overline{\text{B}}$ 41'44	17.85976 AU	minimum elong	4763 Feb 06 07:14	16° $\approx$ 40'14	0°34'13
direct	4755 Sep 18 22:34	11° $\overline{\text{B}}$ 38'51		max. Earth dist.	4763 Feb 06 15:40	16° $\approx$ 41'30	20.32377 AU
				retrograde	4763 May 24 19:46	20° $\approx$ 47'49	
conjunction	4756 Jan 07 06:40	15° $\overline{\text{B}}$ 57'55	0°-13'-5	opposition	4763 Aug 09 06:35	18° $\approx$ 48'35	0°-39'-13
minimum elong	4756 Jan 07 06:40	15° $\overline{\text{B}}$ 57'55	0°13'06	min. Earth dist.	4763 Aug 08 22:25	18° $\approx$ 49'24	18.35314 AU
behind sun begin	4756 Jan 07 02:40	15° $\overline{\text{B}}$ 57'19		direct	4763 Oct 25 10:54	16° $\approx$ 48'14	
behind sun end	4756 Jan 07 10:40	15° $\overline{\text{B}}$ 58'31					
max. Earth dist.	4756 Jan 07 05:10	15° $\overline{\text{B}}$ 57'42	19.89059 AU	conjunction	4764 Feb 10 17:40	20° $\approx$ 56'11	0°-36'-30
retrograde	4756 Apr 23 11:02	20° $\overline{\text{B}}$ 11'11		minimum elong	4764 Feb 10 17:40	20° $\approx$ 56'11	0°36'31
opposition	4756 Jul 07 16:11	18° $\overline{\text{B}}$ 11'06	0°-16'-25	max. Earth dist.	4764 Feb 11 02:49	20° $\approx$ 57'33	20.38238 AU
min. Earth dist.	4756 Jul 07 16:11	18° $\overline{\text{B}}$ 11'06	17.92137 AU	retrograde	4764 May 28 08:57	25° $\approx$ 03'01	
direct	4756 Sep 22 21:48	16° $\overline{\text{B}}$ 08'23		opposition	4764 Aug 12 23:04	23° $\approx$ 03'48	0°-41'-37
				min. Earth dist.	4764 Aug 12 12:29	23° $\approx$ 04'52	18.41142 AU
conjunction	4757 Jan 10 22:52	20° $\overline{\text{B}}$ 26'08	0°-16'-32	direct	4764 Oct 29 03:13	21° $\approx$ 03'42	
minimum elong	4757 Jan 10 22:52	20° $\overline{\text{B}}$ 26'08	0°16'33				
max. Earth dist.	4757 Jan 10 22:57	20° $\overline{\text{B}}$ 26'09	19.95285 AU	conjunction	4765 Feb 14 03:33	25° $\approx$ 10'19	0°-38'-34
retrograde	4757 Apr 28 03:06	24° $\overline{\text{B}}$ 38'36		minimum elong	4765 Feb 14 03:33	25° $\approx$ 10'19	0°38'34
opposition	4757 Jul 12 13:16	22° $\overline{\text{B}}$ 38'42	0°-20'-12	max. Earth dist.	4765 Feb 14 14:59	25° $\approx$ 12'01	20.44026 AU
min. Earth dist.	4757 Jul 12 12:46	22° $\overline{\text{B}}$ 38'45	17.98422 AU	retrograde	4765 Jun 01 20:03	29° $\approx$ 16'25	
direct	4757 Sep 27 17:16	20° $\overline{\text{B}}$ 36'23		opposition	4765 Aug 17 15:02	27° $\approx$ 17'15	0°-43'-47

min. Earth dist.	4765 Aug 17 03:53	27° $\approx$ 18'22	18.46911 AU	min. Earth dist.	4773 Sep 20 06:51	0° $\Upsilon$ 19'06	18.86600 AU
direct	4765 Nov 02 16:55	25° $\approx$ 17'27		opposition	4773 Sep 21 01:12	0° $\Upsilon$ 17'16	0°-51'-51
					4773 Sep 28 06:22	30° $\Re$ $\mathcal{H}$	
conjunction	4766 Feb 18 12:34	29° $\approx$ 22'45	0°-40'-25	direct	4773 Dec 06 12:13	28° $\mathcal{H}$ 19'52	
minimum elong	4766 Feb 18 12:34	29° $\approx$ 22'45	0°40'26		4774 Feb 09 04:03	0° $\Upsilon$	
max. Earth dist.	4766 Feb 19 00:36	29° $\approx$ 24'32	20.49767 AU				
	4766 Feb 28 23:24	0° $\mathcal{H}$		conjunction	4774 Mar 22 21:11	2° $\Upsilon$ 16'57	0°-46'-51
retrograde	4766 Jun 06 08:48	3° $\mathcal{H}$ 28'11		minimum elong	4774 Mar 22 21:11	2° $\Upsilon$ 16'57	0°46'52
opposition	4766 Aug 22 06:10	1° $\mathcal{H}$ 29'04	0°-45'-42	max. Earth dist.	4774 Mar 23 15:55	2° $\Upsilon$ 19'40	20.88301 AU
min. Earth dist.	4766 Aug 21 16:45	1° $\mathcal{H}$ 30'25	18.52616 AU	retrograde	4774 Jul 09 20:06	6° $\Upsilon$ 18'53	
	4766 Oct 02 15:14	30° $\Re$ $\approx$		opposition	4774 Sep 25 12:13	4° $\Upsilon$ 20'14	0°-51'-41
direct	4766 Nov 07 07:15	29° $\approx$ 29'35		min. Earth dist.	4774 Sep 24 17:21	4° $\Upsilon$ 22'07	18.89950 AU
	4766 Dec 11 23:15	0° $\mathcal{H}$		direct	4774 Dec 10 20:32	2° $\Upsilon$ 23'00	
conjunction	4767 Feb 22 21:12	3° $\mathcal{H}$ 33'38	0°-42'-2	conjunction	4775 Mar 27 02:57	6° $\Upsilon$ 19'20	0°-46'-36
minimum elong	4767 Feb 22 21:12	3° $\mathcal{H}$ 33'38	0°42'03	minimum elong	4775 Mar 27 02:57	6° $\Upsilon$ 19'20	0°46'37
max. Earth dist.	4767 Feb 23 11:26	3° $\mathcal{H}$ 35'45	20.55414 AU	max. Earth dist.	4775 Mar 27 22:55	6° $\Upsilon$ 22'14	20.91403 AU
retrograde	4767 Jun 10 19:04	7° $\mathcal{H}$ 38'27		retrograde	4775 Jul 14 04:04	10° $\Upsilon$ 21'00	
opposition	4767 Aug 26 20:43	5° $\mathcal{H}$ 39'25	0°-47'-21	opposition	4775 Sep 29 22:43	8° $\Upsilon$ 22'19	0°-51'-16
min. Earth dist.	4767 Aug 26 06:52	5° $\mathcal{H}$ 40'49	18.58208 AU	min. Earth dist.	4775 Sep 29 03:53	8° $\Upsilon$ 24'12	18.92815 AU
direct	4767 Nov 11 19:16	3° $\mathcal{H}$ 40'16		direct	4775 Dec 15 06:03	6° $\Upsilon$ 25'14	
conjunction	4768 Feb 27 05:10	7° $\mathcal{H}$ 43'08	0°-43'-26	conjunction	4776 Mar 30 08:20	10° $\Upsilon$ 20'52	0°-46'-7
minimum elong	4768 Feb 27 05:10	7° $\mathcal{H}$ 43'08	0°43'27	minimum elong	4776 Mar 30 08:19	10° $\Upsilon$ 20'52	0°46'08
max. Earth dist.	4768 Feb 27 19:44	7° $\mathcal{H}$ 45'17	20.60944 AU	max. Earth dist.	4776 Mar 31 03:31	10° $\Upsilon$ 23'39	20.94057 AU
retrograde	4768 Jun 14 07:18	11° $\mathcal{H}$ 47'23		retrograde	4776 Jul 17 13:58	14° $\Upsilon$ 22'20	
opposition	4768 Aug 30 10:45	9° $\mathcal{H}$ 48'26	0°-48'-45	opposition	4776 Oct 03 08:48	12° $\Upsilon$ 23'33	0°-50'-36
min. Earth dist.	4768 Aug 29 19:00	9° $\mathcal{H}$ 50'01	18.63661 AU	min. Earth dist.	4776 Oct 02 13:33	12° $\Upsilon$ 25'28	18.95264 AU
direct	4768 Nov 15 08:07	7° $\mathcal{H}$ 49'37		direct	4776 Dec 18 13:39	10° $\Upsilon$ 26'34	
conjunction	4769 Mar 02 12:39	11° $\mathcal{H}$ 51'21	0°-44'-35	conjunction	4777 Apr 03 13:33	14° $\Upsilon$ 21'35	0°-45'-24
minimum elong	4769 Mar 02 12:39	11° $\mathcal{H}$ 51'21	0°44'36	minimum elong	4777 Apr 03 13:33	14° $\Upsilon$ 21'35	0°45'25
max. Earth dist.	4769 Mar 03 05:22	11° $\mathcal{H}$ 53'49	20.66292 AU	max. Earth dist.	4777 Apr 04 10:10	14° $\Upsilon$ 24'34	20.96299 AU
retrograde	4769 Jun 18 17:18	15° $\mathcal{H}$ 55'07		retrograde	4777 Jul 21 21:19	18° $\Upsilon$ 22'53	
min. Earth dist.	4769 Sep 03 08:18	13° $\mathcal{H}$ 57'52	18.68899 AU	opposition	4777 Oct 07 18:23	16° $\Upsilon$ 24'01	0°-49'-41
opposition	4769 Sep 04 00:21	13° $\mathcal{H}$ 56'15	0°-49'-54	min. Earth dist.	4777 Oct 06 23:01	16° $\Upsilon$ 25'58	18.97314 AU
direct	4769 Nov 19 19:08	11° $\mathcal{H}$ 57'46		direct	4777 Dec 22 22:02	14° $\Upsilon$ 27'08	
conjunction	4770 Mar 06 19:45	15° $\mathcal{H}$ 58'26	0°-45'-31	conjunction	4778 Apr 07 18:36	18° $\Upsilon$ 21'37	0°-44'-28
minimum elong	4770 Mar 06 19:45	15° $\mathcal{H}$ 58'26	0°45'31	minimum elong	4778 Apr 07 18:37	18° $\Upsilon$ 21'37	0°44'29
max. Earth dist.	4770 Mar 07 12:28	16° $\mathcal{H}$ 00'53	20.71408 AU	max. Earth dist.	4778 Apr 08 14:26	18° $\Upsilon$ 24'29	20.98176 AU
retrograde	4770 Jun 23 04:37	20° $\mathcal{H}$ 01'44		retrograde	4778 Jul 26 06:46	22° $\Upsilon$ 22'49	
opposition	4770 Sep 08 13:08	18° $\mathcal{H}$ 02'57	0°-50'-46	min. Earth dist.	4778 Oct 11 07:47	20° $\Upsilon$ 25'50	18.99027 AU
min. Earth dist.	4770 Sep 07 19:45	18° $\mathcal{H}$ 04'42	18.73880 AU	opposition	4778 Oct 12 03:24	20° $\Upsilon$ 23'52	0°-48'-31
direct	4770 Nov 24 06:15	16° $\mathcal{H}$ 04'46		direct	4778 Dec 27 04:48	18° $\Upsilon$ 27'03	
conjunction	4771 Mar 11 02:37	20° $\mathcal{H}$ 04'28	0°-46'-12	conjunction	4779 Apr 11 23:43	22° $\Upsilon$ 21'07	0°-43'-19
minimum elong	4771 Mar 11 02:37	20° $\mathcal{H}$ 04'28	0°46'13	minimum elong	4779 Apr 11 23:43	22° $\Upsilon$ 21'07	0°43'20
max. Earth dist.	4771 Mar 11 21:06	20° $\mathcal{H}$ 07'10	20.76220 AU	max. Earth dist.	4779 Apr 12 20:54	22° $\Upsilon$ 24'10	20.99714 AU
retrograde	4771 Jun 27 14:11	24° $\mathcal{H}$ 07'21		retrograde	4779 Jul 30 13:45	26° $\Upsilon$ 22'16	
min. Earth dist.	4771 Sep 12 08:12	22° $\mathcal{H}$ 10'24	18.78521 AU	opposition	4779 Oct 16 12:13	24° $\Upsilon$ 23'16	0°-47'-8
opposition	4771 Sep 13 01:39	22° $\mathcal{H}$ 08'39	0°-51'-24	min. Earth dist.	4779 Oct 15 16:23	24° $\Upsilon$ 25'15	19.00397 AU
direct	4771 Nov 28 16:41	20° $\mathcal{H}$ 10'46		direct	4779 Dec 31 11:55	22° $\Upsilon$ 26'32	
conjunction	4772 Mar 14 08:57	24° $\mathcal{H}$ 09'31	0°-46'-39	conjunction	4780 Apr 15 04:33	26° $\Upsilon$ 20'15	0°-41'-58
minimum elong	4772 Mar 14 08:57	24° $\mathcal{H}$ 09'31	0°46'40	minimum elong	4780 Apr 15 04:33	26° $\Upsilon$ 20'15	0°42'00
max. Earth dist.	4772 Mar 15 03:03	24° $\mathcal{H}$ 12'10	20.80677 AU	max. Earth dist.	4780 Apr 16 00:54	26° $\Upsilon$ 23'10	21.00929 AU
retrograde	4772 Jul 01 00:52	28° $\mathcal{H}$ 12'04			4780 Jul 04 03:55	0° $\mathcal{B}$	
opposition	4772 Sep 16 13:41	26° $\mathcal{H}$ 13'24	0°-51'-45	retrograde	4780 Aug 02 22:52	0° $\mathcal{B}$ 21'26	
min. Earth dist.	4772 Sep 15 19:17	26° $\mathcal{H}$ 15'15	18.82785 AU		4780 Sep 02 03:43	30° $\Re$ $\Upsilon$	
direct	4772 Dec 02 02:12	24° $\mathcal{H}$ 15'47		opposition	4780 Oct 19 20:48	28° $\Upsilon$ 22'22	0°-45'-31
				min. Earth dist.	4780 Oct 19 00:54	28° $\Upsilon$ 24'21	19.01453 AU
conjunction	4773 Mar 18 15:16	28° $\mathcal{H}$ 13'41	0°-46'-52	direct	4781 Jan 03 18:09	26° $\Upsilon$ 25'42	
minimum elong	4773 Mar 18 15:16	28° $\mathcal{H}$ 13'41	0°46'54		4781 Apr 13 20:14	0° $\mathcal{B}$	
max. Earth dist.	4773 Mar 19 10:49	28° $\mathcal{H}$ 16'32	20.84715 AU				
	4773 Apr 19 01:04	0° $\Upsilon$		conjunction	4781 Apr 19 09:44	0° $\mathcal{B}$ 19'11	0°-40'-25
retrograde	4773 Jul 05 09:47	2° $\Upsilon$ 15'53		minimum elong	4781 Apr 19 09:44	0° $\mathcal{B}$ 19'11	0°40'25



max. Earth dist.	4781 Apr 20 07:18	0°8'22"17	21.01811 AU	conjunction	4789 May 21 13:07	2°II'18'53	0°-21'-44
retrograde	4781 Aug 07 06:21	4°8'20"26		minimum elong	4789 May 21 13:07	2°II'18'53	0°21'46
min. Earth dist.	4781 Oct 23 09:03	2°8'23"20	19.02157 AU	max. Earth dist.	4789 May 22 05:27	2°II'21'13	20.93515 AU
opposition	4781 Oct 24 04:58	2°8'21"20	0°-43'-42	retrograde	4789 Sep 09 05:46	6°II'22'36	
direct	4782 Jan 08 00:26	0°8'24'46		opposition	4789 Nov 25 20:10	4°II'22'50	0°-22'-21
				min. Earth dist.	4789 Nov 25 05:52	4°II'24'17	18.91971 AU
conjunction	4782 Apr 23 14:58	4°8'18'05	0°-38'-40	direct	4790 Feb 09 00:09	2°II'25'51	
minimum elong	4782 Apr 23 14:58	4°8'18'05	0°38'42				
max. Earth dist.	4782 Apr 24 11:21	4°8'21'00	21.02346 AU	conjunction	4790 May 25 21:14	6°II'20'52	0°-18'-46
retrograde	4782 Aug 11 14:55	8°8'19'29		minimum elong	4790 May 25 21:14	6°II'20'52	0°18'48
opposition	4782 Oct 28 13:05	6°8'20'21	0°-41'-40	max. Earth dist.	4790 May 26 11:26	6°II'22'54	20.90318 AU
min. Earth dist.	4782 Oct 27 17:32	6°8'22'19	19.02507 AU	retrograde	4790 Sep 13 15:36	10°II'25'05	
direct	4783 Jan 12 06:02	4°8'23'50		opposition	4790 Nov 30 04:06	8°II'25'07	0°-19'00
				min. Earth dist.	4790 Nov 29 15:17	8°II'26'25	18.88585 AU
conjunction	4783 Apr 27 20:26	8°8'17'05	0°-36'-44	direct	4791 Feb 13 05:45	6°II'27'55	
minimum elong	4783 Apr 27 20:26	8°8'17'05	0°36'46				
max. Earth dist.	4783 Apr 28 17:45	8°8'20'09	21.02496 AU	conjunction	4791 May 30 05:50	10°II'23'30	0°-15'-42
retrograde	4783 Aug 15 23:21	12°8'18'42		minimum elong	4791 May 30 05:50	10°II'23'30	0°15'43
opposition	4783 Nov 01 21:03	10°8'19'32	0°-39'-26	behind sun begin	4791 May 30 04:38	10°II'23'20	
min. Earth dist.	4783 Nov 01 01:40	10°8'21'29	19.02449 AU	behind sun end	4791 May 30 07:02	10°II'23'41	
direct	4784 Jan 16 12:14	8°8'23'05		max. Earth dist.	4791 May 30 20:18	10°II'25'35	20.86754 AU
				retrograde	4791 Sep 18 01:40	14°II'28'15	
conjunction	4784 May 01 02:09	12°8'16'21	0°-34'-38	opposition	4791 Dec 04 12:03	12°II'28'07	0°-15'-33
minimum elong	4784 May 01 02:09	12°8'16'21	0°34'40	min. Earth dist.	4791 Dec 03 23:30	12°II'29'24	18.84854 AU
max. Earth dist.	4784 May 01 21:59	12°8'19'11	21.02240 AU	direct	4792 Feb 17 13:09	10°II'30'42	
	4784 Jun 22 06:02	15°8'					
retrograde	4784 Aug 19 07:45	16°8'18'14		conjunction	4792 Jun 02 14:56	14°II'26'57	0°-12'-32
	4784 Oct 18 20:37	15°8'		minimum elong	4792 Jun 02 14:56	14°II'26'57	0°12'34
min. Earth dist.	4784 Nov 04 10:27	14°8'20'53	19.01975 AU	behind sun begin	4792 Jun 02 10:41	14°II'26'21	
opposition	4784 Nov 05 05:01	14°8'19'01	0°-37'00	behind sun end	4792 Jun 02 19:11	14°II'27'32	
direct	4785 Jan 19 17:22	12°8'22'34		max. Earth dist.	4792 Jun 03 03:20	14°II'28'43	20.82883 AU
	4785 Apr 12 21:44	15°8'		retrograde	4792 Sep 21 12:02	18°II'32'18	
conjunction	4785 May 05 08:24	16°8'15'58	0°-32'-21	opposition	4792 Dec 07 20:09	16°II'31'59	0°-12'-1
minimum elong	4785 May 05 08:24	16°8'15'58	0°32'23	min. Earth dist.	4792 Dec 07 09:11	16°II'33'07	18.80849 AU
max. Earth dist.	4785 May 06 04:42	16°8'18'52	21.01527 AU	direct	4793 Feb 20 18:39	14°II'34'20	
retrograde	4785 Aug 23 16:51	20°8'18'08		conjunction	4793 Jun 07 00:49	18°II'31'20	0°-9'-18
opposition	4785 Nov 09 12:52	18°8'18'53	0°-34'-24	minimum elong	4793 Jun 07 00:49	18°II'31'20	0°09'20
min. Earth dist.	4785 Nov 08 18:47	18°8'20'42	19.01008 AU	behind sun begin	4793 Jun 06 19:13	18°II'30'33	
direct	4786 Jan 23 23:45	16°8'22'26		behind sun end	4793 Jun 07 06:24	18°II'32'07	
				max. Earth dist.	4793 Jun 07 13:20	18°II'33'08	20.78744 AU
conjunction	4786 May 09 14:56	20°8'16'00	0°-29'-55	retrograde	4793 Sep 25 23:24	22°II'37'19	
minimum elong	4786 May 09 14:57	20°8'16'00	0°29'56	opposition	4793 Dec 12 04:23	20°II'36'52	0°-8'-24
max. Earth dist.	4786 May 10 09:13	20°8'18'37	21.00309 AU	min. Earth dist.	4793 Dec 11 17:43	20°II'37'58	18.76578 AU
retrograde	4786 Aug 28 01:40	24°8'18'31		direct	4794 Feb 25 02:34	18°II'39'00	
opposition	4786 Nov 13 20:41	22°8'19'11	0°-31'-37				
min. Earth dist.	4786 Nov 13 03:52	22°8'20'52	18.99528 AU	conjunction	4794 Jun 11 11:07	22°II'36'50	0°-6'-2
direct	4787 Jan 28 04:57	20°8'22'39		minimum elong	4794 Jun 11 11:07	22°II'36'50	0°06'04
				behind sun begin	4794 Jun 11 04:46	22°II'35'56	
conjunction	4787 May 13 22:02	24°8'16'29	0°-27'-20	behind sun end	4794 Jun 11 17:28	22°II'37'43	
minimum elong	4787 May 13 22:02	24°8'16'30	0°27'22	max. Earth dist.	4794 Jun 11 21:24	22°II'38'18	20.74361 AU
max. Earth dist.	4787 May 14 16:24	24°8'19'07	20.98559 AU	retrograde	4794 Sep 30 10:36	26°II'43'30	
retrograde	4787 Sep 01 10:54	28°8'19'22		opposition	4794 Dec 16 12:57	24°II'42'56	0°-4'-43
opposition	4787 Nov 18 04:33	26°8'19'55	0°-28'-40	min. Earth dist.	4794 Dec 16 03:59	24°II'43'51	18.72087 AU
min. Earth dist.	4787 Nov 17 12:17	26°8'21'34	18.97501 AU	direct	4795 Mar 01 08:33	22°II'44'50	
direct	4788 Feb 01 11:37	24°8'23'18					
				conjunction	4795 Jun 15 22:16	26°II'43'35	0°-2'-41
conjunction	4788 May 17 05:13	28°8'17'27	0°-24'-36	minimum elong	4795 Jun 15 22:17	26°II'43'35	0°02'43
minimum elong	4788 May 17 05:13	28°8'17'26	0°24'37	behind sun begin	4795 Jun 15 15:37	26°II'42'39	
max. Earth dist.	4788 May 17 21:26	28°8'19'46	20.96283 AU	behind sun end	4795 Jun 16 04:58	26°II'44'32	
	4788 Jun 16 22:25	0°II'		max. Earth dist.	4795 Jun 16 08:35	26°II'45'04	20.69765 AU
retrograde	4788 Sep 04 20:23	2°II'20'45			4795 Aug 20 00:17	0°8'	
opposition	4788 Nov 21 12:31	0°II'21'08	0°-25'-35	retrograde	4795 Oct 04 23:24	0°8'50'59	
min. Earth dist.	4788 Nov 20 21:40	0°II'22'38	18.94971 AU		4795 Nov 20 21:48	30°R'II'	
	4788 Nov 30 06:07	30°R'8'		opposition	4795 Dec 20 21:45	28°II'50'19	0°-1'-1
direct	4789 Feb 04 17:13	28°8'24'20		min. Earth dist.	4795 Dec 20 13:06	28°II'51'12	18.67379 AU
	4789 Apr 08 13:31	0°II'		direct	4796 Mar 04 16:45	26°II'52'01	

asc. node	4796 Mar 31 07:59	27° $\Pi$ 10'34		opposition	4803 Jan 19 00:02	28° $\mathfrak{C}$ 25'59	0°24'43
	4796 Jun 04 10:55	0° $\mathfrak{C}$		min. Earth dist.	4803 Jan 19 02:42	28° $\mathfrak{C}$ 25'42	18.27562 AU
				direct	4803 Apr 03 13:45	26° $\mathfrak{C}$ 25'32	
conjunction	4796 Jun 19 10:01	0° $\mathfrak{C}$ 51'45	0°00'46		4803 Jul 11 08:09	0° $\mathcal{O}$	
minimum elong	4796 Jun 19 10:01	0° $\mathfrak{C}$ 51'45	0°00'45				
behind sun begin	4796 Jun 19 03:20	0° $\mathfrak{C}$ 50'48		conjunction	4803 Jul 20 21:11	0° $\mathcal{O}$ 33'47	0°23'49
behind sun end	4796 Jun 19 16:42	0° $\mathfrak{C}$ 52'41		minimum elong	4803 Jul 20 21:11	0° $\mathcal{O}$ 33'47	0°23'49
max. Earth dist.	4796 Jun 19 17:58	0° $\mathfrak{C}$ 52'53	20.64959 AU	max. Earth dist.	4803 Jul 20 17:47	0° $\mathcal{O}$ 33'17	20.24330 AU
retrograde	4796 Oct 08 12:10	4° $\mathfrak{C}$ 59'56		retrograde	4803 Nov 08 22:01	4° $\mathcal{O}$ 47'41	
opposition	4796 Dec 24 07:05	2° $\mathfrak{C}$ 59'10	0°02'43	opposition	4804 Jan 23 12:25	2° $\mathcal{O}$ 45'54	0°28'06
min. Earth dist.	4796 Dec 24 00:25	2° $\mathfrak{C}$ 59'51	18.62464 AU	min. Earth dist.	4804 Jan 23 15:33	2° $\mathcal{O}$ 45'34	18.21045 AU
direct	4797 Mar 09 00:00	1° $\mathfrak{C}$ 00'38		direct	4804 Apr 07 03:47	0° $\mathcal{O}$ 45'01	
conjunction	4797 Jun 23 22:52	5° $\mathfrak{C}$ 01'27	0°04'11	conjunction	4804 Jul 24 15:42	4° $\mathcal{O}$ 54'38	0°26'48
minimum elong	4797 Jun 23 22:53	5° $\mathfrak{C}$ 01'27	0°04'11	minimum elong	4804 Jul 24 15:42	4° $\mathcal{O}$ 54'38	0°26'48
behind sun begin	4797 Jun 23 16:17	5° $\mathfrak{C}$ 00'31		max. Earth dist.	4804 Jul 24 10:02	4° $\mathcal{O}$ 53'48	20.17785 AU
behind sun end	4797 Jun 24 05:29	5° $\mathfrak{C}$ 02'23		retrograde	4804 Nov 12 13:32	9° $\mathcal{O}$ 09'20	
max. Earth dist.	4797 Jun 24 06:28	5° $\mathfrak{C}$ 02'32	20.59931 AU	opposition	4805 Jan 27 01:33	7° $\mathcal{O}$ 07'22	0°31'21
retrograde	4797 Oct 13 02:10	9° $\mathfrak{C}$ 10'25		min. Earth dist.	4805 Jan 27 07:01	7° $\mathcal{O}$ 06'47	18.14502 AU
opposition	4797 Dec 28 16:31	7° $\mathfrak{C}$ 09'35	0°06'28	direct	4805 Apr 11 16:22	5° $\mathcal{O}$ 06'03	
min. Earth dist.	4797 Dec 28 10:26	7° $\mathfrak{C}$ 10'13	18.57310 AU				
direct	4798 Mar 13 08:43	5° $\mathfrak{C}$ 10'50		conjunction	4805 Jul 29 11:05	9° $\mathcal{O}$ 17'02	0°29'39
conjunction	4798 Jun 28 12:24	9° $\mathfrak{C}$ 12'48	0°07'34	minimum elong	4805 Jul 29 11:05	9° $\mathcal{O}$ 17'02	0°29'39
minimum elong	4798 Jun 28 12:24	9° $\mathfrak{C}$ 12'47	0°07'33	max. Earth dist.	4805 Jul 29 04:24	9° $\mathcal{O}$ 16'03	20.11256 AU
behind sun begin	4798 Jun 28 06:19	9° $\mathfrak{C}$ 11'56		retrograde	4805 Nov 17 07:45	13° $\mathcal{O}$ 32'32	
behind sun end	4798 Jun 28 18:29	9° $\mathfrak{C}$ 13'39		opposition	4806 Jan 31 14:57	11° $\mathcal{O}$ 30'23	0°34'26
max. Earth dist.	4798 Jun 28 17:18	9° $\mathfrak{C}$ 13'29	20.54652 AU	min. Earth dist.	4806 Jan 31 20:43	11° $\mathcal{O}$ 29'46	18.08004 AU
retrograde	4798 Oct 17 16:26	13° $\mathfrak{C}$ 22'36		direct	4806 Apr 16 08:07	9° $\mathcal{O}$ 28'39	
opposition	4799 Jan 02 02:43	11° $\mathfrak{C}$ 21'40	0°10'13	conjunction	4806 Aug 03 07:10	13° $\mathcal{O}$ 41'03	0°32'20
min. Earth dist.	4799 Jan 01 22:59	11° $\mathfrak{C}$ 22'03	18.51901 AU	minimum elong	4806 Aug 03 07:09	13° $\mathcal{O}$ 41'03	0°32'19
direct	4799 Mar 17 17:24	9° $\mathfrak{C}$ 22'38		max. Earth dist.	4806 Aug 02 22:42	13° $\mathcal{O}$ 39'48	20.04798 AU
conjunction	4799 Jul 03 02:52	13° $\mathfrak{C}$ 25'48	0°10'55		4806 Aug 25 15:38	15° $\mathcal{O}$	
minimum elong	4799 Jul 03 02:51	13° $\mathfrak{C}$ 25'48	0°10'54	retrograde	4806 Nov 22 00:14	17° $\mathcal{O}$ 57'21	
behind sun begin	4799 Jul 02 21:49	13° $\mathfrak{C}$ 25'05		opposition	4807 Feb 05 05:13	15° $\mathcal{O}$ 55'02	0°37'20
behind sun end	4799 Jul 03 07:54	13° $\mathfrak{C}$ 26'31		min. Earth dist.	4807 Feb 05 13:04	15° $\mathcal{O}$ 54'12	18.01622 AU
max. Earth dist.	4799 Jul 03 07:02	13° $\mathfrak{C}$ 26'23	20.49103 AU		4807 Feb 27 09:30	15° $\mathcal{R}$ $\mathcal{O}$	
retrograde	4799 Oct 22 07:27	17° $\mathfrak{C}$ 36'26		direct	4807 Apr 20 21:38	13° $\mathcal{O}$ 52'54	
opposition	4800 Jan 06 13:18	15° $\mathfrak{C}$ 35'23	0°13'56		4807 Jun 11 04:16	15° $\mathcal{O}$	
min. Earth dist.	4800 Jan 06 10:14	15° $\mathfrak{C}$ 35'42	18.46201 AU	conjunction	4807 Aug 08 03:56	18° $\mathcal{O}$ 06'43	0°34'50
direct	4800 Mar 21 03:44	13° $\mathfrak{C}$ 36'04		minimum elong	4807 Aug 08 03:56	18° $\mathcal{O}$ 06'43	0°34'50
conjunction	4800 Jul 06 18:12	17° $\mathfrak{C}$ 40'27	0°14'15	max. Earth dist.	4807 Aug 07 18:23	18° $\mathcal{O}$ 05'18	19.98501 AU
minimum elong	4800 Jul 06 18:12	17° $\mathfrak{C}$ 40'27	0°14'14	retrograde	4807 Nov 26 20:01	22° $\mathcal{O}$ 23'50	
behind sun begin	4800 Jul 06 15:10	17° $\mathfrak{C}$ 40'01		opposition	4808 Feb 09 19:58	20° $\mathcal{O}$ 21'23	0°40'01
behind sun end	4800 Jul 06 21:15	17° $\mathfrak{C}$ 40'53		min. Earth dist.	4808 Feb 10 03:55	20° $\mathcal{O}$ 20'31	17.95418 AU
max. Earth dist.	4800 Jul 06 19:27	17° $\mathfrak{C}$ 40'37	20.43256 AU	direct	4808 Apr 24 14:54	18° $\mathcal{O}$ 18'53	
retrograde	4800 Oct 25 22:15	21° $\mathfrak{C}$ 51'55		conjunction	4808 Aug 12 01:41	22° $\mathcal{O}$ 34'08	0°37'09
opposition	4801 Jan 10 00:25	19° $\mathfrak{C}$ 50'42	0°17'36	minimum elong	4808 Aug 12 01:41	22° $\mathcal{O}$ 34'08	0°37'08
min. Earth dist.	4801 Jan 09 23:56	19° $\mathfrak{C}$ 50'45	18.40218 AU	max. Earth dist.	4808 Aug 11 14:48	22° $\mathcal{O}$ 32'31	19.92390 AU
direct	4801 Mar 25 13:52	17° $\mathfrak{C}$ 51'02		retrograde	4808 Nov 30 13:50	26° $\mathcal{O}$ 52'01	
conjunction	4801 Jul 11 10:33	21° $\mathfrak{C}$ 56'42	0°17'31	opposition	4809 Feb 13 11:24	24° $\mathcal{O}$ 49'30	0°42'29
minimum elong	4801 Jul 11 10:33	21° $\mathfrak{C}$ 56'42	0°17'30	min. Earth dist.	4809 Feb 13 21:21	24° $\mathcal{O}$ 48'25	17.89429 AU
max. Earth dist.	4801 Jul 11 10:44	21° $\mathfrak{C}$ 56'43	20.37144 AU	direct	4809 Apr 29 05:56	22° $\mathcal{O}$ 46'40	
retrograde	4801 Oct 30 14:16	26° $\mathfrak{C}$ 08'58		max. Earth dist.	4809 Aug 16 11:54	27° $\mathcal{O}$ 01'31	19.86528 AU
opposition	4802 Jan 14 11:55	24° $\mathfrak{C}$ 07'35	0°21'13	conjunction	4809 Aug 17 00:12	27° $\mathcal{O}$ 03'22	0°39'15
min. Earth dist.	4802 Jan 14 12:06	24° $\mathfrak{C}$ 07'34	18.33979 AU	minimum elong	4809 Aug 17 00:11	27° $\mathcal{O}$ 03'22	0°39'14
direct	4802 Mar 30 02:15	22° $\mathfrak{C}$ 07'32			4809 Oct 09 09:13	0° $\mathfrak{M}$	
conjunction	4802 Jul 16 03:23	26° $\mathfrak{C}$ 14'28	0°20'43	retrograde	4809 Dec 05 10:51	1° $\mathfrak{M}$ 22'02	
minimum elong	4802 Jul 16 03:23	26° $\mathfrak{C}$ 14'28	0°20'43		4810 Feb 02 04:59	30° $\mathcal{R}$ $\mathcal{O}$	
max. Earth dist.	4802 Jul 16 00:56	26° $\mathfrak{C}$ 14'07	20.30802 AU	opposition	4810 Feb 18 03:28	29° $\mathcal{O}$ 19'28	0°44'43
	4802 Oct 02 05:23	0° $\mathcal{O}$		min. Earth dist.	4810 Feb 18 13:35	29° $\mathcal{O}$ 18'22	17.83691 AU
retrograde	4802 Nov 04 05:02	0° $\mathcal{O}$ 27'34		direct	4810 May 04 00:23	27° $\mathcal{O}$ 16'20	
	4802 Dec 07 11:55	30° $\mathcal{R}$ $\mathfrak{C}$			4810 Jul 26 09:38	0° $\mathfrak{M}$	

conjunction	4810 Aug 21 23:21	1° $\mathring{M}$ 34'29	0°41'07	conjunction	4818 Sep 29 15:22	8° $\mathring{A}$ 40'56	0°46'13
minimum elong	4810 Aug 21 23:21	1° $\mathring{M}$ 34'29	0°41'07	minimum elong	4818 Sep 29 15:22	8° $\mathring{A}$ 40'56	0°46'13
max. Earth dist.	4810 Aug 21 10:15	1° $\mathring{M}$ 32'30	19.80903 AU	max. Earth dist.	4818 Sep 28 18:06	8° $\mathring{A}$ 37'39	19.44827 AU
retrograde	4810 Dec 10 06:28	5° $\mathring{M}$ 53'55		retrograde	4819 Jan 16 17:53	13° $\mathring{A}$ 04'11	
opposition	4811 Feb 22 20:22	3° $\mathring{M}$ 51'19	0°46'40	opposition	4819 Mar 31 10:06	11° $\mathring{A}$ 01'19	0°51'09
min. Earth dist.	4811 Feb 23 08:21	3° $\mathring{M}$ 50'01	17.78194 AU	min. Earth dist.	4819 Apr 01 04:23	10° $\mathring{A}$ 59'18	17.43347 AU
direct	4811 May 08 17:16	1° $\mathring{M}$ 47'55		direct	4819 Jun 14 22:28	8° $\mathring{A}$ 55'44	
conjunction	4811 Aug 26 23:22	6° $\mathring{M}$ 07'29	0°42'45	conjunction	4819 Oct 04 18:43	13° $\mathring{A}$ 24'02	0°45'29
minimum elong	4811 Aug 26 23:22	6° $\mathring{M}$ 07'29	0°42'44	minimum elong	4819 Oct 04 18:43	13° $\mathring{A}$ 24'02	0°45'29
max. Earth dist.	4811 Aug 26 08:26	6° $\mathring{M}$ 05'13	19.75529 AU	max. Earth dist.	4819 Oct 03 20:11	13° $\mathring{A}$ 20'32	19.41930 AU
retrograde	4811 Dec 15 04:34	10° $\mathring{M}$ 27'39		retrograde	4820 Jan 21 16:06	17° $\mathring{A}$ 47'25	
opposition	4812 Feb 27 13:45	8° $\mathring{M}$ 25'03	0°48'22	opposition	4820 Apr 04 08:06	15° $\mathring{A}$ 44'30	0°50'10
min. Earth dist.	4812 Feb 28 02:12	8° $\mathring{M}$ 23'42	17.72935 AU	min. Earth dist.	4820 Apr 05 03:01	15° $\mathring{A}$ 42'26	17.40725 AU
direct	4812 May 12 12:59	6° $\mathring{M}$ 21'22		direct	4820 Jun 18 23:40	13° $\mathring{A}$ 38'42	
max. Earth dist.	4812 Aug 30 08:40	10° $\mathring{M}$ 39'58	19.70361 AU	conjunction	4820 Oct 08 22:16	18° $\mathring{A}$ 07'40	0°44'26
conjunction	4812 Aug 31 00:18	10° $\mathring{M}$ 42'20	0°44'07	minimum elong	4820 Oct 08 22:16	18° $\mathring{A}$ 07'40	0°44'27
minimum elong	4812 Aug 31 00:18	10° $\mathring{M}$ 42'20	0°44'08	max. Earth dist.	4820 Oct 08 00:38	18° $\mathring{A}$ 04'18	19.39581 AU
retrograde	4812 Dec 19 01:54	15° $\mathring{M}$ 03'09		retrograde	4821 Jan 25 15:41	22° $\mathring{A}$ 31'07	
opposition	4813 Mar 03 08:04	13° $\mathring{M}$ 00'33	0°49'45	opposition	4821 Apr 09 06:39	20° $\mathring{A}$ 28'14	0°48'50
min. Earth dist.	4813 Mar 03 22:17	12° $\mathring{M}$ 59'00	17.67874 AU	min. Earth dist.	4821 Apr 10 00:53	20° $\mathring{A}$ 26'14	17.38658 AU
direct	4813 May 17 07:35	10° $\mathring{M}$ 56'36		direct	4821 Jun 24 01:37	18° $\mathring{A}$ 22'17	
max. Earth dist.	4813 Sep 04 07:46	15° $\mathring{M}$ 16'09	19.65402 AU	max. Earth dist.	4821 Oct 13 03:29	22° $\mathring{A}$ 48'19	19.37812 AU
conjunction	4813 Sep 05 01:39	15° $\mathring{M}$ 18'53	0°45'13	conjunction	4821 Oct 14 01:34	22° $\mathring{A}$ 51'45	0°43'05
minimum elong	4813 Sep 05 01:39	15° $\mathring{M}$ 18'53	0°45'13	minimum elong	4821 Oct 14 01:34	22° $\mathring{A}$ 51'45	0°43'05
retrograde	4813 Dec 24 00:48	19° $\mathring{M}$ 40'18		retrograde	4822 Jan 30 14:10	27° $\mathring{A}$ 15'13	
opposition	4814 Mar 08 02:57	17° $\mathring{M}$ 37'39	0°50'50	opposition	4822 Apr 14 05:41	25° $\mathring{A}$ 12'23	0°47'11
min. Earth dist.	4814 Mar 08 17:45	17° $\mathring{M}$ 36'03	17.63029 AU	min. Earth dist.	4822 Apr 15 00:22	25° $\mathring{A}$ 10'21	17.37207 AU
direct	4814 May 22 04:49	15° $\mathring{M}$ 33'25		direct	4822 Jun 29 02:42	23° $\mathring{A}$ 06'21	
max. Earth dist.	4814 Sep 09 09:36	19° $\mathring{M}$ 54'10	19.60661 AU	max. Earth dist.	4822 Oct 18 07:47	27° $\mathring{A}$ 32'56	19.36677 AU
conjunction	4814 Sep 10 03:45	19° $\mathring{M}$ 56'57	0°46'02	conjunction	4822 Oct 19 04:58	27° $\mathring{A}$ 36'15	0°41'27
minimum elong	4814 Sep 10 03:45	19° $\mathring{M}$ 56'57	0°46'02	minimum elong	4822 Oct 19 04:58	27° $\mathring{A}$ 36'15	0°41'28
retrograde	4814 Dec 28 23:12	24° $\mathring{M}$ 18'52		retrograde	4822 Nov 28 12:24	0° $\mathring{M}$	
opposition	4815 Mar 12 22:31	22° $\mathring{M}$ 16'12	0°51'35	retrograde	4823 Feb 04 14:59	1° $\mathring{M}$ 59'39	
min. Earth dist.	4815 Mar 13 14:39	22° $\mathring{M}$ 14'27	17.58414 AU		4823 Apr 18 00:41	30° $\mathring{R}$ $\mathring{A}$	
direct	4815 May 27 00:57	20° $\mathring{M}$ 11'41		opposition	4823 Apr 19 04:52	29° $\mathring{A}$ 56'55	0°45'12
max. Earth dist.	4815 Sep 14 09:43	24° $\mathring{M}$ 33'14	19.56186 AU	min. Earth dist.	4823 Apr 19 22:26	29° $\mathring{A}$ 55'00	17.36370 AU
conjunction	4815 Sep 15 06:05	24° $\mathring{M}$ 36'22	0°46'33	direct	4823 Jul 04 05:19	27° $\mathring{A}$ 50'51	
minimum elong	4815 Sep 15 06:05	24° $\mathring{M}$ 36'22	0°46'33		4823 Sep 14 21:18	0° $\mathring{M}$	
retrograde	4816 Jan 02 22:05	28° $\mathring{M}$ 58'45		max. Earth dist.	4823 Oct 23 11:17	2° $\mathring{M}$ 17'48	19.36144 AU
opposition	4816 Mar 16 18:38	26° $\mathring{M}$ 56'01	0°52'00	conjunction	4823 Oct 24 08:16	2° $\mathring{M}$ 21'05	0°39'31
min. Earth dist.	4816 Mar 17 11:27	26° $\mathring{M}$ 54'11	17.54089 AU	minimum elong	4823 Oct 24 08:16	2° $\mathring{M}$ 21'05	0°39'32
direct	4816 May 30 23:42	24° $\mathring{M}$ 51'12		retrograde	4824 Feb 09 13:40	6° $\mathring{M}$ 44'23	
conjunction	4816 Sep 19 09:06	29° $\mathring{M}$ 16'57	0°46'45	opposition	4824 Apr 23 04:37	4° $\mathring{M}$ 41'48	0°42'54
minimum elong	4816 Sep 19 09:06	29° $\mathring{M}$ 16'57	0°46'45	min. Earth dist.	4824 Apr 23 22:49	4° $\mathring{M}$ 39'49	17.36131 AU
max. Earth dist.	4816 Sep 18 12:56	29° $\mathring{M}$ 13'50	19.52012 AU	direct	4824 Jul 08 06:01	2° $\mathring{M}$ 35'45	
retrograde	4816 Oct 01 00:47	0° $\mathring{A}$		conjunction	4824 Oct 28 11:24	7° $\mathring{M}$ 06'11	0°37'20
opposition	4817 Jan 06 20:39	3° $\mathring{A}$ 39'41		minimum elong	4824 Oct 28 11:24	7° $\mathring{M}$ 06'11	0°37'20
min. Earth dist.	4817 Mar 21 15:14	1° $\mathring{A}$ 36'55	0°52'04	max. Earth dist.	4824 Oct 27 14:55	7° $\mathring{M}$ 02'58	19.36190 AU
direct	4817 Mar 22 08:52	1° $\mathring{A}$ 34'59	17.50087 AU	retrograde	4825 Feb 13 15:08	11° $\mathring{M}$ 29'17	
retrograde	4817 May 03 00:07	30° $\mathring{R}$ $\mathring{M}$		opposition	4825 Apr 28 04:32	9° $\mathring{M}$ 26'52	0°40'19
direct	4817 Jun 04 21:44	29° $\mathring{M}$ 31'49		min. Earth dist.	4825 Apr 28 21:25	9° $\mathring{M}$ 25'01	17.36435 AU
conjunction	4817 Sep 24 12:09	3° $\mathring{A}$ 58'32	0°46'39	direct	4825 Jul 13 09:27	7° $\mathring{M}$ 20'53	
minimum elong	4817 Sep 24 12:09	3° $\mathring{A}$ 58'32	0°46'39	conjunction	4825 Nov 02 14:22	11° $\mathring{M}$ 51'23	0°34'53
max. Earth dist.	4817 Sep 23 14:08	3° $\mathring{A}$ 55'08	19.48204 AU	minimum elong	4825 Nov 02 14:22	11° $\mathring{M}$ 51'23	0°34'54
retrograde	4818 Jan 11 19:12	8° $\mathring{A}$ 21'34		max. Earth dist.	4825 Nov 01 18:40	11° $\mathring{M}$ 48'18	19.36749 AU
opposition	4818 Mar 26 12:27	6° $\mathring{A}$ 18'44	0°51'47	retrograde	4825 Dec 28 01:13	15° $\mathring{M}$	
min. Earth dist.	4818 Mar 27 06:41	6° $\mathring{A}$ 16'44	17.46495 AU		4826 Feb 18 13:38	16° $\mathring{M}$ 14'14	
direct	4818 Jun 09 22:09	4° $\mathring{A}$ 13'22		opposition	4826 Apr 14 06:13	15° $\mathring{R}$ $\mathring{M}$	
				min. Earth dist.	4826 May 03 04:56	14° $\mathring{M}$ 11'59	0°37'27
					4826 May 03 22:26	14° $\mathring{M}$ 10'05	17.37245 AU

direct	4826 Jul 18 10:29	12° <del>ℓ</del> 06'05		minimum elong	4833 Dec 10 18:59	19° <del>♊</del> 33'02	0°08'41
	4826 Oct 12 12:24	15° <del>ℓ</del>		behind sun begin	4833 Dec 10 13:13	19° <del>♊</del> 32'10	
				behind sun end	4833 Dec 11 00:45	19° <del>♊</del> 33'55	
conjunction	4826 Nov 07 16:49	16° <del>ℓ</del> 36'30	0°32'12	max. Earth dist.	4833 Dec 10 07:43	19° <del>♊</del> 31'18	19.56733 AU
minimum elong	4826 Nov 07 16:50	16° <del>ℓ</del> 36'30	0°32'12	retrograde	4834 Mar 27 22:22	23° <del>♊</del> 51'18	
max. Earth dist.	4826 Nov 06 21:13	16° <del>ℓ</del> 33'26	19.37799 AU	opposition	4834 Jun 10 07:55	21° <del>♊</del> 50'05	0°07'34
retrograde	4827 Feb 23 14:41	20° <del>ℓ</del> 59'01		min. Earth dist.	4834 Jun 10 17:52	21° <del>♊</del> 49'02	17.58878 AU
opposition	4827 May 08 05:21	18° <del>ℓ</del> 56'55	0°34'20	direct	4834 Aug 26 09:04	19° <del>♊</del> 45'20	
min. Earth dist.	4827 May 08 21:25	18° <del>ℓ</del> 55'11	17.38511 AU				
direct	4827 Jul 23 14:19	16° <del>ℓ</del> 51'07		conjunction	4834 Dec 15 16:04	24° <del>♊</del> 10'33	0°04'58
				minimum elong	4834 Dec 15 16:04	24° <del>♊</del> 10'33	0°04'58
conjunction	4827 Nov 12 19:08	21° <del>ℓ</del> 21'21	0°29'18	behind sun begin	4834 Dec 15 09:37	24° <del>♊</del> 09'34	
minimum elong	4827 Nov 12 19:08	21° <del>ℓ</del> 21'21	0°29'19	behind sun end	4834 Dec 15 22:32	24° <del>♊</del> 11'32	
max. Earth dist.	4827 Nov 12 00:49	21° <del>ℓ</del> 18'28	19.39276 AU	max. Earth dist.	4834 Dec 15 05:30	24° <del>♊</del> 08'55	19.61146 AU
retrograde	4828 Feb 28 12:45	25° <del>ℓ</del> 43'26		retrograde	4835 Apr 01 18:20	28° <del>♊</del> 28'02	
opposition	4828 May 12 05:58	23° <del>ℓ</del> 41'30	0°30'59	opposition	4835 Jun 15 07:22	26° <del>♊</del> 26'58	0°03'24
min. Earth dist.	4828 May 12 22:31	23° <del>ℓ</del> 39'42	17.40197 AU	min. Earth dist.	4835 Jun 15 15:39	26° <del>♊</del> 26'05	17.63523 AU
direct	4828 Jul 27 15:53	21° <del>ℓ</del> 35'48		direct	4835 Aug 31 09:30	24° <del>♊</del> 22'28	
conjunction	4828 Nov 16 20:49	26° <del>ℓ</del> 05'41	0°26'12	conjunction	4835 Dec 20 12:31	28° <del>♊</del> 46'36	0°01'12
minimum elong	4828 Nov 16 20:49	26° <del>ℓ</del> 05'41	0°26'12	minimum elong	4835 Dec 20 12:31	28° <del>♊</del> 46'36	0°01'12
max. Earth dist.	4828 Nov 16 02:22	26° <del>ℓ</del> 02'47	19.41176 AU	behind sun begin	4835 Dec 20 05:54	28° <del>♊</del> 45'36	
	4829 Feb 01 03:47	0° <del>♊</del>		behind sun end	4835 Dec 20 19:08	28° <del>♊</del> 47'37	
retrograde	4829 Mar 04 12:55	0° <del>♊</del> 27'18		max. Earth dist.	4835 Dec 20 04:37	28° <del>♊</del> 45'24	19.66013 AU
	4829 Apr 05 11:27	30° <del>♋</del>			4836 Jan 09 10:01	0° <del>♋</del>	
opposition	4829 May 17 06:38	28° <del>ℓ</del> 25'29	0°27'25	retrograde	4836 Apr 05 14:05	3° <del>♋</del> 03'17	
min. Earth dist.	4829 May 17 21:37	28° <del>ℓ</del> 23'52	17.42294 AU	desc. node	4836 Apr 12 16:07	3° <del>♋</del> 01'56	
direct	4829 Aug 01 19:58	26° <del>ℓ</del> 19'55		opposition	4836 Jun 19 06:26	1° <del>♋</del> 02'24	0°00'-44
	4829 Nov 08 17:54	0° <del>♊</del>		min. Earth dist.	4836 Jun 19 12:57	1° <del>♋</del> 01'43	17.68589 AU
					4836 Jul 15 02:03	30° <del>♋</del>	
conjunction	4829 Nov 21 21:53	0° <del>♊</del> 49'19	0°22'56	direct	4836 Sep 04 09:40	28° <del>♊</del> 58'14	
minimum elong	4829 Nov 21 21:53	0° <del>♊</del> 49'19	0°22'56		4836 Oct 23 20:13	0° <del>♋</del>	
max. Earth dist.	4829 Nov 21 05:22	0° <del>♊</del> 46'44	19.43471 AU				
retrograde	4830 Mar 09 10:15	5° <del>♊</del> 10'23		conjunction	4836 Dec 24 08:01	3° <del>♋</del> 21'13	0°-2'-37
opposition	4830 May 22 07:22	3° <del>♊</del> 08'42	0°23'41	minimum elong	4836 Dec 24 08:01	3° <del>♋</del> 21'13	0°02'38
min. Earth dist.	4830 May 22 22:22	3° <del>♊</del> 07'05	17.44782 AU	behind sun begin	4836 Dec 24 01:24	3° <del>♋</del> 20'13	
direct	4830 Aug 06 22:12	1° <del>♊</del> 03'16		behind sun end	4836 Dec 24 14:37	3° <del>♋</del> 22'13	
				max. Earth dist.	4836 Dec 24 01:06	3° <del>♋</del> 20'10	19.71289 AU
conjunction	4830 Nov 26 22:16	5° <del>♊</del> 32'03	0°19'31	retrograde	4837 Apr 10 09:41	7° <del>♋</del> 37'05	
minimum elong	4830 Nov 26 22:16	5° <del>♊</del> 32'03	0°19'32	opposition	4837 Jun 24 05:14	5° <del>♋</del> 36'24	0°-4'-53
max. Earth dist.	4830 Nov 26 05:40	5° <del>♊</del> 29'27	19.46169 AU	min. Earth dist.	4837 Jun 24 10:23	5° <del>♋</del> 35'52	17.74057 AU
retrograde	4831 Mar 14 08:47	9° <del>♊</del> 52'30		direct	4837 Sep 09 08:30	3° <del>♋</del> 32'34	
opposition	4831 May 27 07:40	7° <del>♊</del> 50'56	0°19'48				
min. Earth dist.	4831 May 27 21:07	7° <del>♊</del> 49'29	17.47677 AU	conjunction	4837 Dec 29 02:41	7° <del>♋</del> 54'21	0°-6'-19
direct	4831 Aug 12 01:56	5° <del>♊</del> 45'38		minimum elong	4837 Dec 29 02:40	7° <del>♋</del> 54'21	0°06'19
				behind sun begin	4837 Dec 28 20:25	7° <del>♋</del> 53'24	
conjunction	4831 Dec 01 22:07	10° <del>♊</del> 13'42	0°15'59	behind sun end	4837 Dec 29 08:55	7° <del>♋</del> 55'18	
minimum elong	4831 Dec 01 22:07	10° <del>♊</del> 13'42	0°15'59	max. Earth dist.	4837 Dec 28 22:12	7° <del>♋</del> 53'41	19.76927 AU
behind sun begin	4831 Dec 01 21:35	10° <del>♊</del> 13'37		retrograde	4838 Apr 15 04:57	12° <del>♋</del> 09'24	
behind sun end	4831 Dec 01 22:40	10° <del>♊</del> 13'47		opposition	4838 Jun 29 03:33	10° <del>♋</del> 08'57	0°-8'-57
max. Earth dist.	4831 Dec 01 07:49	10° <del>♊</del> 11'28	19.49266 AU	min. Earth dist.	4838 Jun 29 06:43	10° <del>♋</del> 08'37	17.79826 AU
retrograde	4832 Mar 18 05:26	14° <del>♊</del> 33'27		direct	4838 Sep 14 07:30	8° <del>♋</del> 05'30	
opposition	4832 May 31 08:04	12° <del>♊</del> 32'00	0°15'48				
min. Earth dist.	4832 May 31 20:59	12° <del>♊</del> 30'37	17.50969 AU	conjunction	4839 Jan 02 20:34	12° <del>♋</del> 26'00	0°-9'-56
direct	4832 Aug 16 04:42	10° <del>♊</del> 26'51		minimum elong	4839 Jan 02 20:35	12° <del>♋</del> 26'00	0°09'57
				behind sun begin	4839 Jan 02 15:12	12° <del>♋</del> 25'12	
conjunction	4832 Dec 05 20:52	14° <del>♊</del> 54'04	0°12'21	behind sun end	4839 Jan 03 01:57	12° <del>♋</del> 26'49	
minimum elong	4832 Dec 05 20:52	14° <del>♊</del> 54'04	0°12'23	max. Earth dist.	4839 Jan 02 17:11	12° <del>♋</del> 25'30	19.82822 AU
behind sun begin	4832 Dec 05 16:29	14° <del>♊</del> 53'23		retrograde	4839 Apr 19 23:30	16° <del>♋</del> 40'13	
behind sun end	4832 Dec 06 01:15	14° <del>♊</del> 54'44		opposition	4839 Jul 04 01:25	14° <del>♋</del> 39'58	0°-12'-57
max. Earth dist.	4832 Dec 05 06:52	14° <del>♊</del> 51'53	19.52777 AU	min. Earth dist.	4839 Jul 04 03:44	14° <del>♋</del> 39'44	17.85836 AU
retrograde	4833 Mar 23 02:15	19° <del>♊</del> 13'06		direct	4839 Sep 19 05:13	12° <del>♋</del> 36'53	
opposition	4833 Jun 05 08:09	17° <del>♊</del> 11'45	0°11'43				
min. Earth dist.	4833 Jun 05 19:21	17° <del>♊</del> 10'33	17.54701 AU	conjunction	4840 Jan 07 13:46	16° <del>♋</del> 56'06	0°-13'-29
direct	4833 Aug 21 07:20	15° <del>♊</del> 06'47		minimum elong	4840 Jan 07 13:46	16° <del>♋</del> 56'06	0°13'29
				behind sun begin	4840 Jan 07 10:00	16° <del>♋</del> 55'32	
conjunction	4833 Dec 10 18:59	19° <del>♊</del> 33'02	0°08'40	behind sun end	4840 Jan 07 17:32	16° <del>♋</del> 56'40	

max. Earth dist.	4840 Jan 07 12:17	16° $\overline{3}$ 55'53	19.88921 AU	conjunction	4848 Feb 11 01:00	21° $\approx$ 53'32	0°-36'-50
retrograde	4840 Apr 23 17:49	21° $\overline{3}$ 09'27		minimum elong	4848 Feb 11 01:00	21° $\approx$ 53'32	0°36'50
opposition	4840 Jul 07 22:54	19° $\overline{3}$ 09'25	0°-16'-52	max. Earth dist.	4848 Feb 11 10:17	21° $\approx$ 54'56	20.37908 AU
min. Earth dist.	4840 Jul 07 23:05	19° $\overline{3}$ 09'24	17.91993 AU	retrograde	4848 May 28 16:34	26° $\approx$ 00'19	
direct	4840 Sep 23 03:52	17° $\overline{3}$ 06'44		opposition	4848 Aug 13 05:43	24° $\approx$ 01'04	0°-41'-59
				min. Earth dist.	4848 Aug 12 19:01	24° $\approx$ 02'09	18.40865 AU
conjunction	4841 Jan 11 05:59	21° $\overline{3}$ 24'35	0°-16'-56	direct	4848 Oct 29 10:12	22° $\approx$ 00'56	
minimum elong	4841 Jan 11 05:59	21° $\overline{3}$ 24'35	0°16'56				
max. Earth dist.	4841 Jan 11 05:47	21° $\overline{3}$ 24'33	19.95126 AU	conjunction	4849 Feb 14 10:47	26° $\approx$ 07'35	0°-38'-53
retrograde	4841 Apr 28 10:34	25° $\overline{3}$ 37'06		minimum elong	4849 Feb 14 10:47	26° $\approx$ 07'35	0°38'54
opposition	4841 Jul 12 20:04	23° $\overline{3}$ 37'13	0°-20'-38	max. Earth dist.	4849 Feb 14 22:15	26° $\approx$ 09'18	20.43806 AU
min. Earth dist.	4841 Jul 12 19:40	23° $\overline{3}$ 37'16	17.98245 AU		4849 May 10 01:56	0° $\overline{H}$	
direct	4841 Sep 28 00:39	21° $\overline{3}$ 34'54		retrograde	4849 Jun 02 03:11	0° $\overline{H}$ 13'42	
					4849 Jun 25 16:59	30° $\overline{R}$ $\approx$	
conjunction	4842 Jan 15 21:32	25° $\overline{3}$ 51'22	0°-20'-16	opposition	4849 Aug 17 21:43	28° $\approx$ 14'31	0°-44'-7
minimum elong	4842 Jan 15 21:32	25° $\overline{3}$ 51'22	0°20'17	min. Earth dist.	4849 Aug 17 10:36	28° $\approx$ 15'39	18.46746 AU
max. Earth dist.	4842 Jan 15 22:48	25° $\overline{3}$ 51'33	20.01396 AU	direct	4849 Nov 03 00:10	26° $\approx$ 14'44	
	4842 Apr 22 11:21	0° $\approx$			4850 Feb 13 04:56	0° $\overline{H}$	
retrograde	4842 May 03 03:52	0° $\approx$ 03'01					
	4842 May 13 20:03	30° $\overline{R}$ $\overline{3}$		conjunction	4850 Feb 18 19:59	0° $\overline{H}$ 20'07	0°-40'-43
opposition	4842 Jul 17 16:20	28° $\overline{3}$ 03'18	0°-24'-16	minimum elong	4850 Feb 18 19:59	0° $\overline{H}$ 20'07	0°40'42
min. Earth dist.	4842 Jul 17 13:47	28° $\overline{3}$ 03'34	18.04511 AU	max. Earth dist.	4850 Feb 19 08:10	0° $\overline{H}$ 21'56	20.49656 AU
direct	4842 Oct 02 22:14	26° $\overline{3}$ 01'20		retrograde	4850 Jun 06 16:14	4° $\overline{H}$ 25'36	
	4843 Jan 16 00:52	0° $\approx$		opposition	4850 Aug 22 12:46	2° $\overline{H}$ 26'32	0°-46'-1
				min. Earth dist.	4850 Aug 21 23:22	2° $\overline{H}$ 27'53	18.52551 AU
conjunction	4843 Jan 20 12:16	0° $\approx$ 16'23	0°-23'-28	direct	4850 Nov 07 14:05	0° $\overline{H}$ 27'05	
minimum elong	4843 Jan 20 12:15	0° $\approx$ 16'23	0°23'28				
max. Earth dist.	4843 Jan 20 14:49	0° $\approx$ 16'46	20.07644 AU	conjunction	4851 Feb 23 04:41	4° $\overline{H}$ 31'17	0°-42'-19
retrograde	4843 May 07 18:38	4° $\approx$ 27'11		minimum elong	4851 Feb 23 04:41	4° $\overline{H}$ 31'17	0°42'20
opposition	4843 Jul 22 12:19	2° $\approx$ 27'36	0°-27'-44	max. Earth dist.	4851 Feb 23 18:54	4° $\overline{H}$ 33'23	20.55393 AU
min. Earth dist.	4843 Jul 22 09:29	2° $\approx$ 27'53	18.10744 AU	retrograde	4851 Jun 11 02:29	8° $\overline{H}$ 36'10	
direct	4843 Oct 07 17:38	0° $\approx$ 25'58		opposition	4851 Aug 27 03:33	6° $\overline{H}$ 37'14	0°-47'-39
				min. Earth dist.	4851 Aug 26 13:53	6° $\overline{H}$ 38'36	18.58219 AU
conjunction	4844 Jan 25 02:05	4° $\approx$ 39'35	0°-26'-31	direct	4851 Nov 12 02:35	4° $\overline{H}$ 38'09	
minimum elong	4844 Jan 25 02:05	4° $\approx$ 39'35	0°26'32				
max. Earth dist.	4844 Jan 25 05:46	4° $\approx$ 40'08	20.13844 AU	conjunction	4852 Feb 27 12:39	8° $\overline{H}$ 41'11	0°-43'-41
retrograde	4844 May 11 10:51	8° $\approx$ 49'32		minimum elong	4852 Feb 27 12:39	8° $\overline{H}$ 41'11	0°43'42
opposition	4844 Jul 26 07:30	6° $\approx$ 50'02	0°-31'-1	max. Earth dist.	4852 Feb 28 03:18	8° $\overline{H}$ 43'21	20.60977 AU
min. Earth dist.	4844 Jul 26 02:24	6° $\approx$ 50'34	18.16898 AU	retrograde	4852 Jun 14 14:51	12° $\overline{H}$ 45'33	
direct	4844 Oct 11 13:59	4° $\approx$ 48'43		opposition	4852 Aug 30 17:42	10° $\overline{H}$ 46'43	0°-49'-2
				min. Earth dist.	4852 Aug 30 02:03	10° $\overline{H}$ 48'17	18.63704 AU
conjunction	4845 Jan 28 15:07	9° $\approx$ 00'55	0°-29'-23	direct	4852 Nov 15 14:48	8° $\overline{H}$ 47'59	
minimum elong	4845 Jan 28 15:07	9° $\approx$ 00'55	0°29'23				
max. Earth dist.	4845 Jan 28 20:24	9° $\approx$ 01'42	20.19955 AU	conjunction	4853 Mar 02 20:23	12° $\overline{H}$ 49'55	0°-44'-50
retrograde	4845 May 15 23:57	13° $\approx$ 10'01		minimum elong	4853 Mar 02 20:23	12° $\overline{H}$ 49'55	0°44'51
opposition	4845 Jul 31 02:10	11° $\approx$ 10'36	0°-34'-6	max. Earth dist.	4853 Mar 03 12:53	12° $\overline{H}$ 52'20	20.66336 AU
min. Earth dist.	4845 Jul 30 20:49	11° $\approx$ 11'09	18.22978 AU	retrograde	4853 Jun 19 00:38	16° $\overline{H}$ 53'47	
direct	4845 Oct 16 07:27	9° $\approx$ 09'34		opposition	4853 Sep 04 07:20	14° $\overline{H}$ 55'04	0°-50'-9
				min. Earth dist.	4853 Sep 03 15:38	14° $\overline{H}$ 56'38	18.68937 AU
conjunction	4846 Feb 02 03:09	13° $\approx$ 20'19	0°-32'-4	direct	4853 Nov 20 02:03	12° $\overline{H}$ 56'40	
minimum elong	4846 Feb 02 03:09	13° $\approx$ 20'19	0°32'05				
max. Earth dist.	4846 Feb 02 09:28	13° $\approx$ 21'16	20.26000 AU	conjunction	4854 Mar 07 03:36	16° $\overline{H}$ 57'32	0°-45'-44
	4846 Mar 02 09:27	15° $\approx$		minimum elong	4854 Mar 07 03:36	16° $\overline{H}$ 57'32	0°45'46
retrograde	4846 May 20 15:02	17° $\approx$ 28'37		max. Earth dist.	4854 Mar 07 20:03	16° $\overline{H}$ 59'57	20.71424 AU
opposition	4846 Aug 04 19:58	15° $\approx$ 29'14	0°-36'-58	retrograde	4854 Jun 23 12:41	21° $\overline{H}$ 00'58	
min. Earth dist.	4846 Aug 04 12:14	15° $\approx$ 30'01	18.28984 AU	opposition	4854 Sep 08 20:22	19° $\overline{H}$ 02'19	0°-51'-1
	4846 Aug 16 21:12	15° $\overline{R}$ $\approx$		min. Earth dist.	4854 Sep 08 03:12	19° $\overline{H}$ 04'03	18.73863 AU
direct	4846 Oct 21 02:07	13° $\approx$ 28'29		direct	4854 Nov 24 13:12	17° $\overline{H}$ 04'14	
	4846 Dec 21 07:56	15° $\approx$					
conjunction	4847 Feb 06 14:29	17° $\approx$ 37'50	0°-34'-33	conjunction	4855 Mar 11 10:34	21° $\overline{H}$ 04'07	0°-46'-24
minimum elong	4847 Feb 06 14:29	17° $\approx$ 37'50	0°34'34	minimum elong	4855 Mar 11 10:34	21° $\overline{H}$ 04'07	0°46'25
max. Earth dist.	4847 Feb 06 22:45	17° $\approx$ 39'04	20.31967 AU	max. Earth dist.	4855 Mar 12 04:32	21° $\overline{H}$ 06'45	20.76155 AU
retrograde	4847 May 25 02:29	21° $\approx$ 45'21		retrograde	4855 Jun 27 21:42	25° $\overline{H}$ 07'07	
opposition	4847 Aug 09 13:10	19° $\approx$ 46'01	0°-39'-36	opposition	4855 Sep 13 09:00	23° $\overline{H}$ 08'32	0°-51'-36
min. Earth dist.	4847 Aug 09 05:04	19° $\approx$ 46'51	18.34939 AU	min. Earth dist.	4855 Sep 12 16:00	23° $\overline{H}$ 10'15	18.78403 AU
direct	4847 Oct 25 17:46	17° $\approx$ 45'34		direct	4855 Nov 28 23:17	21° $\overline{H}$ 10'44	

conjunction	4856 Mar 14 17:10	25° <del>✕</del> 09'40	0°-46'-50	conjunction	4864 Apr 15 12:50	27° <del>Υ</del> 20'29	0°-41'-54
minimum elong	4856 Mar 14 17:10	25° <del>✕</del> 09'40	0°46'52	minimum elong	4864 Apr 15 12:50	27° <del>Υ</del> 20'29	0°41'55
max. Earth dist.	4856 Mar 15 10:42	25° <del>✕</del> 12'13	20.80496 AU	max. Earth dist.	4864 Apr 16 09:13	27° <del>Υ</del> 23'25	21.00535 AU
retrograde	4856 Jul 01 09:10	29° <del>✕</del> 12'18			4864 Jun 04 22:57	0° <del>♄</del>	
opposition	4856 Sep 16 21:08	27° <del>✕</del> 13'43	0°-51'-56	retrograde	4864 Aug 03 06:10	1° <del>♄</del> 21'40	
min. Earth dist.	4856 Sep 16 03:02	27° <del>✕</del> 15'32	18.82534 AU		4864 Oct 04 08:23	30° <del>♁</del> <del>Υ</del>	
direct	4856 Dec 02 10:02	25° <del>✕</del> 16'08		min. Earth dist.	4864 Oct 19 08:29	29° <del>Υ</del> 24'35	19.01094 AU
				opposition	4864 Oct 20 04:29	29° <del>Υ</del> 22'35	0°-45'-26
conjunction	4857 Mar 18 23:30	29° <del>✕</del> 14'10	0°-47'-2	direct	4865 Jan 04 01:29	27° <del>Υ</del> 25'53	
minimum elong	4857 Mar 18 23:30	29° <del>✕</del> 14'10	0°47'02		4865 Mar 27 07:10	0° <del>♄</del>	
max. Earth dist.	4857 Mar 19 18:22	29° <del>✕</del> 16'55	20.84389 AU				
	4857 Apr 01 03:06	0° <del>♁</del>		conjunction	4865 Apr 19 18:03	1° <del>♄</del> 19'26	0°-40'-19
retrograde	4857 Jul 05 17:47	3° <del>♁</del> 16'27		minimum elong	4865 Apr 19 18:03	1° <del>♄</del> 19'26	0°40'21
opposition	4857 Sep 21 08:47	1° <del>♁</del> 17'52	0°-52'-1	max. Earth dist.	4865 Apr 20 15:30	1° <del>♄</del> 22'31	21.01482 AU
min. Earth dist.	4857 Sep 20 14:57	1° <del>♁</del> 19'39	18.86196 AU	retrograde	4865 Aug 07 13:59	5° <del>♄</del> 20'42	
	4857 Oct 26 19:11	30° <del>♁</del> <del>✕</del>		opposition	4865 Oct 24 12:52	3° <del>♄</del> 21'37	0°-43'-34
direct	4857 Dec 06 19:05	29° <del>✕</del> 20'28		min. Earth dist.	4865 Oct 23 17:05	3° <del>♄</del> 23'36	19.01849 AU
	4858 Jan 15 13:33	0° <del>♁</del>		direct	4866 Jan 08 08:14	1° <del>♄</del> 25'02	
conjunction	4858 Mar 23 05:30	3° <del>♁</del> 17'39	0°-46'-59	conjunction	4866 Apr 23 23:20	5° <del>♄</del> 18'25	0°-38'-32
minimum elong	4858 Mar 23 05:30	3° <del>♁</del> 17'39	0°47'00	minimum elong	4866 Apr 23 23:20	5° <del>♄</del> 18'25	0°38'33
max. Earth dist.	4858 Mar 23 23:43	3° <del>♁</del> 20'18	20.87830 AU	max. Earth dist.	4866 Apr 24 19:37	5° <del>♄</del> 21'20	21.02052 AU
retrograde	4858 Jul 10 03:47	7° <del>♁</del> 19'36		retrograde	4866 Aug 11 23:36	9° <del>♄</del> 19'52	
opposition	4858 Sep 25 19:40	5° <del>♁</del> 20'56	0°-51'-49	opposition	4866 Oct 28 21:00	7° <del>♄</del> 20'45	0°-41'-30
min. Earth dist.	4858 Sep 25 01:08	5° <del>♁</del> 22'48	18.89414 AU	min. Earth dist.	4866 Oct 28 01:27	7° <del>♄</del> 22'43	19.02219 AU
direct	4858 Dec 11 05:05	3° <del>♁</del> 23'40		direct	4867 Jan 12 13:37	5° <del>♄</del> 24'14	
conjunction	4859 Mar 27 11:15	7° <del>♁</del> 20'05	0°-46'-42	conjunction	4867 Apr 28 04:59	9° <del>♄</del> 17'35	0°-36'-34
minimum elong	4859 Mar 27 11:15	7° <del>♁</del> 20'05	0°46'43	minimum elong	4867 Apr 28 04:59	9° <del>♄</del> 17'35	0°36'36
max. Earth dist.	4859 Mar 28 06:50	7° <del>♁</del> 22'55	20.90826 AU	max. Earth dist.	4867 Apr 29 02:03	9° <del>♄</del> 20'37	21.02206 AU
retrograde	4859 Jul 14 11:56	11° <del>♁</del> 21'44		retrograde	4867 Aug 16 07:24	13° <del>♄</del> 19'15	
min. Earth dist.	4859 Sep 29 11:50	9° <del>♁</del> 24'51	18.92206 AU	min. Earth dist.	4867 Nov 01 10:02	11° <del>♄</del> 22'03	19.02145 AU
opposition	4859 Sep 30 06:14	9° <del>♁</del> 23'00	0°-51'-22	opposition	4867 Nov 02 05:09	11° <del>♄</del> 20'08	0°-39'-14
direct	4859 Dec 15 13:33	7° <del>♁</del> 25'50		direct	4868 Jan 16 19:56	9° <del>♄</del> 23'41	
conjunction	4860 Mar 30 16:27	11° <del>♁</del> 21'31	0°-46'-10	conjunction	4868 May 01 10:44	13° <del>♄</del> 17'03	0°-34'-26
minimum elong	4860 Mar 30 16:28	11° <del>♁</del> 21'31	0°46'12	minimum elong	4868 May 01 10:44	13° <del>♄</del> 17'03	0°34'28
max. Earth dist.	4860 Mar 31 11:35	11° <del>♁</del> 24'17	20.93435 AU	max. Earth dist.	4868 May 02 06:17	13° <del>♄</del> 19'52	21.01908 AU
retrograde	4860 Jul 17 20:58	15° <del>♁</del> 22'58			4868 Jun 01 07:06	15° <del>♄</del>	
opposition	4860 Oct 03 16:18	13° <del>♁</del> 24'07	0°-50'-39	retrograde	4868 Aug 19 17:31	17° <del>♄</del> 19'01	
min. Earth dist.	4860 Oct 02 21:08	13° <del>♁</del> 26'02	18.94641 AU	opposition	4868 Nov 05 13:14	15° <del>♄</del> 19'50	0°-36'-46
direct	4860 Dec 18 22:02	11° <del>♁</del> 27'03		min. Earth dist.	4868 Nov 04 18:50	15° <del>♄</del> 21'41	19.01601 AU
conjunction	4861 Apr 03 21:47	15° <del>♁</del> 22'07	0°-45'-26		4868 Nov 13 19:36	15° <del>♁</del> <del>♄</del>	
minimum elong	4861 Apr 03 21:47	15° <del>♁</del> 22'07	0°45'27	direct	4869 Jan 20 01:34	13° <del>♄</del> 23'24	
max. Earth dist.	4861 Apr 04 18:20	15° <del>♁</del> 25'05	20.95689 AU		4869 Mar 24 08:47	15° <del>♄</del>	
retrograde	4861 Jul 22 04:46	19° <del>♁</del> 23'22		conjunction	4869 May 05 17:08	17° <del>♄</del> 16'54	0°-32'-8
min. Earth dist.	4861 Oct 07 06:38	17° <del>♁</del> 26'22	18.96733 AU	minimum elong	4869 May 05 17:08	17° <del>♄</del> 16'54	0°32'08
opposition	4861 Oct 08 01:47	17° <del>♁</del> 24'27	0°-49'-42	max. Earth dist.	4869 May 06 12:59	17° <del>♄</del> 19'45	21.01098 AU
direct	4861 Dec 23 05:47	15° <del>♁</del> 27'28		retrograde	4869 Aug 24 01:21	21° <del>♄</del> 19'09	
conjunction	4862 Apr 08 02:49	19° <del>♁</del> 22'00	0°-44'-28	opposition	4869 Nov 09 21:04	19° <del>♄</del> 19'55	0°-34'-7
minimum elong	4862 Apr 08 02:49	19° <del>♁</del> 22'00	0°44'29	min. Earth dist.	4869 Nov 09 03:26	19° <del>♄</del> 21'41	19.00517 AU
max. Earth dist.	4862 Apr 08 22:43	19° <del>♁</del> 24'53	20.97626 AU	direct	4870 Jan 24 07:46	17° <del>♄</del> 23'27	
retrograde	4862 Jul 26 13:26	23° <del>♁</del> 23'10		conjunction	4870 May 09 23:43	21° <del>♄</del> 17'08	0°-29'-39
opposition	4862 Oct 12 10:57	21° <del>♁</del> 24'11	0°-48'-30	minimum elong	4870 May 09 23:43	21° <del>♄</del> 17'08	0°29'41
min. Earth dist.	4862 Oct 11 15:14	21° <del>♁</del> 26'09	18.98515 AU	max. Earth dist.	4870 May 10 17:35	21° <del>♄</del> 19'42	20.99754 AU
direct	4862 Dec 27 12:32	19° <del>♁</del> 27'17		retrograde	4870 Aug 28 11:03	25° <del>♄</del> 19'44	
conjunction	4863 Apr 12 07:49	23° <del>♁</del> 21'24	0°-43'-17	opposition	4870 Nov 14 05:03	23° <del>♄</del> 20'23	0°-31'-19
minimum elong	4863 Apr 12 07:49	23° <del>♁</del> 21'24	0°43'19	min. Earth dist.	4870 Nov 13 12:27	23° <del>♄</del> 22'03	18.98902 AU
max. Earth dist.	4863 Apr 13 05:03	23° <del>♁</del> 24'27	20.99239 AU	direct	4871 Jan 28 13:43	21° <del>♄</del> 23'50	
retrograde	4863 Jul 30 21:06	27° <del>♁</del> 22'32		conjunction	4871 May 14 06:36	25° <del>♄</del> 17'45	0°-27'-2
opposition	4863 Oct 16 19:52	25° <del>♁</del> 23'29	0°-47'-5	minimum elong	4871 May 14 06:36	25° <del>♄</del> 17'45	0°27'03
min. Earth dist.	4863 Oct 16 00:07	25° <del>♁</del> 25'28	18.99963 AU	max. Earth dist.	4871 May 15 00:41	25° <del>♄</del> 20'21	20.97871 AU
direct	4863 Dec 31 19:47	23° <del>♁</del> 26'43		retrograde	4871 Sep 01 19:35	29° <del>♄</del> 20'43	
				opposition	4871 Nov 18 12:57	27° <del>♄</del> 21'13	0°-28'-20

min. Earth dist.	4871 Nov 17 21:02	27° <del>8</del> 22'49	18.96757 AU	min. Earth dist.	4878 Dec 16 11:49	25° <del>II</del> 45'24	18.71759 AU
direct	4872 Feb 01 20:19	25° <del>8</del> 24'33		direct	4879 Mar 01 17:07	23° <del>II</del> 46'20	
conjunction	4872 May 17 13:49	29° <del>8</del> 18'46	0°-24'-17	conjunction	4879 Jun 16 06:25	27° <del>II</del> 45'07	0°-2'-15
minimum elong	4872 May 17 13:49	29° <del>8</del> 18'46	0°24'19	minimum elong	4879 Jun 16 06:24	27° <del>II</del> 45'07	0°02'18
max. Earth dist.	4872 May 18 05:55	29° <del>8</del> 21'04	20.95502 AU	behind sun begin	4879 Jun 15 23:43	27° <del>II</del> 44'11	
	4872 May 29 14:19	0° <del>II</del>		behind sun end	4879 Jun 16 13:05	27° <del>II</del> 46'03	
retrograde	4872 Sep 05 04:41	3° <del>II</del> 22'08		max. Earth dist.	4879 Jun 16 16:57	27° <del>II</del> 46'38	20.69490 AU
opposition	4872 Nov 21 20:45	1° <del>II</del> 22'27	0°-25'-13		4879 Jul 27 05:50	0° <del>III</del>	
min. Earth dist.	4872 Nov 21 06:00	1° <del>II</del> 23'57	18.94165 AU	retrograde	4879 Oct 05 07:39	1° <del>III</del> 52'33	
	4872 Dec 29 10:47	30° <del>R</del> <del>8</del>			4879 Dec 17 23:34	30° <del>R</del> <del>II</del>	
direct	4873 Feb 05 02:08	29° <del>8</del> 25'36		opposition	4879 Dec 21 06:07	29° <del>II</del> 51'53	0°00'-32
	4873 Mar 13 18:51	0° <del>II</del>		min. Earth dist.	4879 Dec 20 21:17	29° <del>II</del> 52'48	18.67145 AU
conjunction	4873 May 21 21:35	3° <del>II</del> 20'13	0°-21'-24	asc. node	4880 Feb 12 21:05	28° <del>II</del> 05'07	
minimum elong	4873 May 21 21:35	3° <del>II</del> 20'13	0°21'25	direct	4880 Mar 05 01:19	27° <del>II</del> 53'35	
max. Earth dist.	4873 May 22 13:53	3° <del>II</del> 22'34	20.92698 AU		4880 May 16 22:58	0° <del>III</del>	
retrograde	4873 Sep 09 14:03	7° <del>II</del> 24'01		conjunction	4880 Jun 19 18:18	1° <del>III</del> 53'21	0°01'13
opposition	4873 Nov 26 04:30	5° <del>II</del> 24'10	0°-21'-58	minimum elong	4880 Jun 19 18:19	1° <del>III</del> 53'21	0°01'12
min. Earth dist.	4873 Nov 25 14:20	5° <del>II</del> 25'36	18.91160 AU	behind sun begin	4880 Jun 19 11:37	1° <del>III</del> 52'24	
direct	4874 Feb 09 08:54	3° <del>II</del> 27'07		behind sun end	4880 Jun 20 01:01	1° <del>III</del> 54'17	
conjunction	4874 May 26 05:31	7° <del>II</del> 22'13	0°-18'-24	max. Earth dist.	4880 Jun 20 02:25	1° <del>III</del> 54'30	20.64762 AU
minimum elong	4874 May 26 05:31	7° <del>II</del> 22'13	0°18'26	retrograde	4880 Oct 08 20:15	6° <del>III</del> 01'33	
max. Earth dist.	4874 May 26 19:52	7° <del>II</del> 24'16	20.89522 AU	opposition	4880 Dec 24 15:25	4° <del>III</del> 00'48	0°03'12
retrograde	4874 Sep 13 23:20	11° <del>II</del> 26'30		min. Earth dist.	4880 Dec 24 08:35	4° <del>III</del> 01'30	18.62290 AU
opposition	4874 Nov 30 12:19	9° <del>II</del> 26'28	0°-18'-36	direct	4881 Mar 09 08:22	2° <del>III</del> 02'16	
min. Earth dist.	4874 Nov 29 23:19	9° <del>II</del> 27'48	18.87821 AU	conjunction	4881 Jun 24 07:17	6° <del>III</del> 03'07	0°04'38
direct	4875 Feb 13 14:41	7° <del>II</del> 29'12		minimum elong	4881 Jun 24 07:17	6° <del>III</del> 03'07	0°04'37
conjunction	4875 May 30 14:08	11° <del>II</del> 24'52	0°-15'-19	behind sun begin	4881 Jun 24 00:43	6° <del>III</del> 02'11	
minimum elong	4875 May 30 14:08	11° <del>II</del> 24'52	0°15'20	behind sun end	4881 Jun 24 13:51	6° <del>III</del> 04'03	
behind sun begin	4875 May 30 12:14	11° <del>II</del> 24'36		max. Earth dist.	4881 Jun 24 14:58	6° <del>III</del> 04'13	20.59765 AU
behind sun end	4875 May 30 16:03	11° <del>II</del> 25'08		retrograde	4881 Oct 13 10:45	10° <del>III</del> 12'07	
max. Earth dist.	4875 May 31 04:45	11° <del>II</del> 26'58	20.86028 AU	opposition	4881 Dec 29 01:07	8° <del>III</del> 11'16	0°06'58
retrograde	4875 Sep 18 09:28	15° <del>II</del> 29'41		min. Earth dist.	4881 Dec 28 19:05	8° <del>III</del> 11'53	18.57140 AU
opposition	4875 Dec 04 20:13	13° <del>II</del> 29'30	0°-15'-7	direct	4882 Mar 13 18:07	6° <del>III</del> 12'30	
min. Earth dist.	4875 Dec 04 07:36	13° <del>II</del> 30'47	18.84179 AU	conjunction	4882 Jun 28 20:47	10° <del>III</del> 14'27	0°08'01
direct	4876 Feb 17 21:23	11° <del>II</del> 32'02		minimum elong	4882 Jun 28 20:47	10° <del>III</del> 14'28	0°08'00
conjunction	4876 Jun 02 23:08	15° <del>II</del> 28'20	0°-12'-8	behind sun begin	4882 Jun 28 14:48	10° <del>III</del> 13'37	
minimum elong	4876 Jun 02 23:08	15° <del>II</del> 28'20	0°12'09	behind sun end	4882 Jun 29 02:46	10° <del>III</del> 15'18	
behind sun begin	4876 Jun 02 18:40	15° <del>II</del> 27'43		max. Earth dist.	4882 Jun 29 01:39	10° <del>III</del> 15'09	20.54463 AU
behind sun end	4876 Jun 03 03:36	15° <del>II</del> 28'58		retrograde	4882 Oct 17 23:59	14° <del>III</del> 24'17	
max. Earth dist.	4876 Jun 03 11:42	15° <del>II</del> 30'08	20.82260 AU	opposition	4883 Jan 02 11:25	12° <del>III</del> 23'19	0°10'44
retrograde	4876 Sep 21 19:57	19° <del>II</del> 33'45		min. Earth dist.	4883 Jan 02 07:40	12° <del>III</del> 23'42	18.51688 AU
opposition	4876 Dec 08 04:22	17° <del>II</del> 33'24	0°-11'-34	direct	4883 Mar 18 02:15	10° <del>III</del> 24'15	
min. Earth dist.	4876 Dec 07 17:03	17° <del>II</del> 34'33	18.80283 AU	conjunction	4883 Jul 03 11:25	14° <del>III</del> 27'24	0°11'23
direct	4877 Feb 21 03:33	15° <del>II</del> 35'43		minimum elong	4883 Jul 03 11:25	14° <del>III</del> 27'23	0°11'22
conjunction	4877 Jun 07 08:59	19° <del>II</del> 32'46	0°-8'-54	behind sun begin	4883 Jul 03 06:34	14° <del>III</del> 26'42	
minimum elong	4877 Jun 07 08:59	19° <del>II</del> 32'46	0°08'56	behind sun end	4883 Jul 03 16:15	14° <del>III</del> 28'05	
behind sun begin	4877 Jun 07 03:16	19° <del>II</del> 31'58		max. Earth dist.	4883 Jul 03 15:34	14° <del>III</del> 27'59	20.48856 AU
behind sun end	4877 Jun 07 14:41	19° <del>II</del> 33'34		retrograde	4883 Oct 22 15:46	18° <del>III</del> 38'01	
max. Earth dist.	4877 Jun 07 21:41	19° <del>II</del> 34'35	20.78235 AU	opposition	4884 Jan 06 22:00	16° <del>III</del> 36'54	0°14'27
retrograde	4877 Sep 26 07:09	23° <del>II</del> 38'47		min. Earth dist.	4884 Jan 06 19:04	16° <del>III</del> 37'13	18.45925 AU
opposition	4877 Dec 12 12:29	21° <del>II</del> 38'19	0°-7'-56	direct	4884 Mar 21 13:27	14° <del>III</del> 37'32	
min. Earth dist.	4877 Dec 12 01:38	21° <del>II</del> 39'26	18.76130 AU	conjunction	4884 Jul 07 02:42	18° <del>III</del> 41'53	0°14'42
direct	4878 Feb 25 10:32	19° <del>II</del> 40'26		minimum elong	4884 Jul 07 02:41	18° <del>III</del> 41'53	0°14'41
conjunction	4878 Jun 11 19:18	23° <del>II</del> 38'18	0°-5'-36	behind sun begin	4884 Jul 07 00:06	18° <del>III</del> 41'30	
minimum elong	4878 Jun 11 19:19	23° <del>II</del> 38'18	0°05'38	behind sun end	4884 Jul 07 05:17	18° <del>III</del> 42'15	
behind sun begin	4878 Jun 11 12:54	23° <del>II</del> 37'24		max. Earth dist.	4884 Jul 07 03:53	18° <del>III</del> 42'03	20.42956 AU
behind sun end	4878 Jun 12 01:44	23° <del>II</del> 39'12		retrograde	4884 Oct 26 05:46	22° <del>III</del> 53'19	
max. Earth dist.	4878 Jun 12 05:48	23° <del>II</del> 39'48	20.73977 AU	opposition	4885 Jan 10 09:11	20° <del>III</del> 52'02	0°18'07
retrograde	4878 Sep 30 18:48	27° <del>II</del> 45'01		min. Earth dist.	4885 Jan 10 08:41	20° <del>III</del> 52'06	18.39898 AU
opposition	4878 Dec 16 21:11	25° <del>II</del> 44'26	0°-4'-15	direct	4885 Mar 25 23:08	18° <del>III</del> 52'17	

conjunction	4885 Jul 11 18:54	22° <del>5</del> 57'54	0°17'59	min. Earth dist.	4893 Feb 14 05:33	25° <del>0</del> 49'41	17.90015 AU
minimum elong	4885 Jul 11 18:54	22° <del>5</del> 57'54	0°17'59	direct	4893 Apr 29 14:07	23° <del>0</del> 48'02	
max. Earth dist.	4885 Jul 11 19:19	22° <del>5</del> 57'57	20.36817 AU				
retrograde	4885 Oct 30 22:12	27° <del>5</del> 10'08		conjunction	4893 Aug 17 07:58	28° <del>0</del> 04'45	0°39'36
opposition	4886 Jan 14 20:33	25° <del>5</del> 08'41	0°21'43	minimum elong	4893 Aug 17 07:58	28° <del>0</del> 04'45	0°39'36
min. Earth dist.	4886 Jan 14 20:42	25° <del>5</del> 08'40	18.33658 AU	max. Earth dist.	4893 Aug 16 20:11	28° <del>0</del> 02'58	19.87159 AU
direct	4886 Mar 30 11:24	23° <del>5</del> 08'34			4893 Sep 19 05:16	0° <del>0</del>	
				retrograde	4893 Dec 05 19:23	2° <del>0</del> 23'30	
conjunction	4886 Jul 16 11:42	27° <del>5</del> 15'27	0°21'10	opposition	4894 Feb 18 12:04	0° <del>0</del> 21'02	0°45'05
minimum elong	4886 Jul 16 11:42	27° <del>5</del> 15'27	0°21'10	min. Earth dist.	4894 Feb 18 21:50	0° <del>0</del> 19'59	17.84351 AU
max. Earth dist.	4886 Jul 16 09:26	27° <del>5</del> 15'07	20.30506 AU		4894 Feb 26 15:52	30° <del>0</del> R <del>0</del>	
	4886 Sep 04 22:15	0° <del>0</del>		direct	4894 May 04 08:23	28° <del>0</del> 18'03	
retrograde	4886 Nov 04 13:13	1° <del>0</del> 28'31			4894 Jul 07 07:36	0° <del>0</del>	
	4887 Jan 06 03:09	30° <del>0</del> R <del>0</del>					
opposition	4887 Jan 19 08:38	29° <del>0</del> 26'52	0°25'13	conjunction	4894 Aug 22 07:20	2° <del>0</del> 36'13	0°41'27
min. Earth dist.	4887 Jan 19 11:05	29° <del>0</del> 26'37	18.27301 AU	minimum elong	4894 Aug 22 07:20	2° <del>0</del> 36'13	0°41'26
direct	4887 Apr 03 22:31	27° <del>0</del> 26'21		max. Earth dist.	4894 Aug 21 18:17	2° <del>0</del> 34'15	19.81575 AU
	4887 Jun 23 22:40	0° <del>0</del>		retrograde	4894 Dec 10 15:03	6° <del>0</del> 55'42	
				opposition	4895 Feb 23 05:00	4° <del>0</del> 53'14	0°47'02
conjunction	4887 Jul 21 05:19	1° <del>0</del> 34'33	0°24'16	min. Earth dist.	4895 Feb 23 16:55	4° <del>0</del> 51'57	17.78863 AU
minimum elong	4887 Jul 21 05:19	1° <del>0</del> 34'33	0°24'16	direct	4895 May 09 01:21	2° <del>0</del> 49'58	
max. Earth dist.	4887 Jul 21 02:23	1° <del>0</del> 34'08	20.24112 AU				
retrograde	4887 Nov 09 06:24	5° <del>0</del> 48'27		conjunction	4895 Aug 27 07:28	7° <del>0</del> 09'31	0°43'03
opposition	4888 Jan 23 21:02	3° <del>0</del> 46'37	0°28'35	minimum elong	4895 Aug 27 07:28	7° <del>0</del> 09'31	0°43'04
min. Earth dist.	4888 Jan 23 23:52	3° <del>0</del> 46'19	18.20881 AU	max. Earth dist.	4895 Aug 26 16:35	7° <del>0</del> 07'15	19.76173 AU
direct	4888 Apr 07 12:00	1° <del>0</del> 45'42		retrograde	4895 Dec 15 13:34	11° <del>0</del> 29'43	
				opposition	4896 Feb 27 22:34	9° <del>0</del> 27'11	0°48'41
conjunction	4888 Jul 24 23:46	5° <del>0</del> 55'16	0°27'14	min. Earth dist.	4896 Feb 28 10:56	9° <del>0</del> 25'51	17.73540 AU
minimum elong	4888 Jul 24 23:46	5° <del>0</del> 55'16	0°27'14	direct	4896 May 12 21:18	7° <del>0</del> 23'37	
max. Earth dist.	4888 Jul 24 18:26	5° <del>0</del> 54'29	20.17682 AU				
retrograde	4888 Nov 12 22:16	10° <del>0</del> 09'58		conjunction	4896 Aug 31 08:28	11° <del>0</del> 44'31	0°44'24
opposition	4889 Jan 27 10:01	8° <del>0</del> 07'58	0°31'49	minimum elong	4896 Aug 31 08:28	11° <del>0</del> 44'31	0°44'24
min. Earth dist.	4889 Jan 27 15:07	8° <del>0</del> 07'26	18.14472 AU	max. Earth dist.	4896 Aug 30 16:35	11° <del>0</del> 42'06	19.70913 AU
direct	4889 Apr 12 00:37	6° <del>0</del> 06'39		retrograde	4896 Dec 19 10:30	16° <del>0</del> 05'20	
				opposition	4897 Mar 03 16:52	14° <del>0</del> 02'46	0°50'03
conjunction	4889 Jul 29 19:04	10° <del>0</del> 17'37	0°30'04	min. Earth dist.	4897 Mar 04 07:13	14° <del>0</del> 01'13	17.68371 AU
minimum elong	4889 Jul 29 19:04	10° <del>0</del> 17'37	0°30'03	direct	4897 May 17 16:10	11° <del>0</del> 58'52	
max. Earth dist.	4889 Jul 29 12:58	10° <del>0</del> 16'43	20.11300 AU				
retrograde	4889 Nov 17 16:17	14° <del>0</del> 33'09		conjunction	4897 Sep 05 09:56	16° <del>0</del> 21'04	0°45'29
opposition	4890 Jan 31 23:31	12° <del>0</del> 31'00	0°34'53	minimum elong	4897 Sep 05 09:56	16° <del>0</del> 21'04	0°45'29
min. Earth dist.	4890 Feb 01 04:47	12° <del>0</del> 30'26	18.08131 AU	max. Earth dist.	4897 Sep 04 15:57	16° <del>0</del> 18'19	19.65843 AU
direct	4890 Apr 16 15:31	10° <del>0</del> 29'18		retrograde	4897 Dec 24 09:28	20° <del>0</del> 42'27	
				opposition	4898 Mar 08 11:47	18° <del>0</del> 39'48	0°51'06
conjunction	4890 Aug 03 14:54	14° <del>0</del> 41'40	0°32'44	min. Earth dist.	4898 Mar 09 02:34	18° <del>0</del> 38'12	17.63410 AU
minimum elong	4890 Aug 03 14:54	14° <del>0</del> 41'40	0°32'44	direct	4898 May 22 13:23	16° <del>0</del> 35'35	
max. Earth dist.	4890 Aug 03 06:54	14° <del>0</del> 40'29	20.05007 AU				
	4890 Aug 08 17:41	15° <del>0</del>		conjunction	4898 Sep 10 11:52	20° <del>0</del> 58'59	0°46'16
retrograde	4890 Nov 22 09:10	18° <del>0</del> 58'02		minimum elong	4898 Sep 10 11:52	20° <del>0</del> 58'59	0°46'16
opposition	4891 Feb 05 13:49	16° <del>0</del> 55'45	0°37'46	max. Earth dist.	4898 Sep 09 17:36	20° <del>0</del> 56'11	19.60989 AU
min. Earth dist.	4891 Feb 05 21:08	16° <del>0</del> 54'58	18.01916 AU	retrograde	4898 Dec 29 07:17	25° <del>0</del> 20'51	
	4891 Apr 05 21:11	15° <del>0</del> R <del>0</del>		opposition	4899 Mar 13 07:23	23° <del>0</del> 18'09	0°51'49
direct	4891 Apr 21 05:56	14° <del>0</del> 53'42		min. Earth dist.	4899 Mar 13 23:40	23° <del>0</del> 16'22	17.58689 AU
	4891 May 06 14:10	15° <del>0</del>		direct	4899 May 27 10:12	21° <del>0</del> 13'37	
conjunction	4891 Aug 08 11:46	19° <del>0</del> 07'30	0°35'13	conjunction	4899 Sep 15 14:16	25° <del>0</del> 38'08	0°46'45
minimum elong	4891 Aug 08 11:46	19° <del>0</del> 07'30	0°35'12	minimum elong	4899 Sep 15 14:16	25° <del>0</del> 38'08	0°46'44
max. Earth dist.	4891 Aug 08 02:51	19° <del>0</del> 06'10	19.98876 AU	max. Earth dist.	4899 Sep 14 17:57	25° <del>0</del> 35'01	19.56421 AU
retrograde	4891 Nov 27 04:15	23° <del>0</del> 24'40			4899 Dec 30 06:41	0° <del>0</del>	
opposition	4892 Feb 10 04:27	21° <del>0</del> 22'18	0°40'26	retrograde	4900 Jan 03 06:05	0° <del>0</del> 00'26	
min. Earth dist.	4892 Feb 10 11:53	21° <del>0</del> 21'30	17.95872 AU		4900 Jan 07 05:04	30° <del>0</del> R <del>0</del>	
direct	4892 Apr 24 22:18	19° <del>0</del> 19'55		opposition	4900 Mar 18 03:18	27° <del>0</del> 57'39	0°52'12
				min. Earth dist.	4900 Mar 18 20:04	27° <del>0</del> 55'49	17.54287 AU
conjunction	4892 Aug 12 09:29	23° <del>0</del> 35'10	0°37'31	direct	4900 Jun 01 08:33	25° <del>0</del> 52'47	
minimum elong	4892 Aug 12 09:29	23° <del>0</del> 35'10	0°37'30		4900 Sep 15 18:04	0° <del>0</del>	
max. Earth dist.	4892 Aug 11 22:58	23° <del>0</del> 33'36	19.92917 AU				
retrograde	4892 Nov 30 22:35	27° <del>0</del> 53'08		conjunction	4900 Sep 20 17:11	0° <del>0</del> 18'23	0°46'55
opposition	4893 Feb 13 20:01	25° <del>0</del> 50'43	0°42'53	minimum elong	4900 Sep 20 17:11	0° <del>0</del> 18'23	0°46'55



max. Earth dist.	4900 Sep 19 21:08	0°♄15'17	19.52187 AU	max. Earth dist.	4908 Oct 28 23:13	8°♍03'58	19.36745 AU
retrograde	4901 Jan 08 04:42	4°♄41'01		retrograde	4909 Feb 14 23:21	12°♍30'19	
opposition	4901 Mar 22 23:58	2°♄38'10	0°52'14	opposition	4909 Apr 29 13:09	10°♍28'00	0°40'09
min. Earth dist.	4901 Mar 23 17:37	2°♄36'15	17.50246 AU	min. Earth dist.	4909 Apr 30 06:04	10°♍26'10	17.36963 AU
direct	4901 Jun 06 07:22	0°♄33'02		direct	4909 Jul 14 17:40	8°♍22'09	
conjunction	4901 Sep 25 20:01	4°♄59'34	0°46'46	conjunction	4909 Nov 03 22:22	12°♍52'40	0°34'43
minimum elong	4901 Sep 25 20:01	4°♄59'34	0°46'46	minimum elong	4909 Nov 03 22:22	12°♍52'40	0°34'43
max. Earth dist.	4901 Sep 24 22:17	4°♄56'13	19.48357 AU	max. Earth dist.	4909 Nov 03 02:34	12°♍49'33	19.37236 AU
retrograde	4902 Jan 13 03:06	9°♄22'32			4909 Dec 09 02:14	15°♍	
opposition	4902 Mar 27 21:04	7°♄19'37	0°51'54	retrograde	4910 Feb 19 22:33	17°♍15'35	
min. Earth dist.	4902 Mar 28 15:03	7°♄17'38	17.46652 AU	opposition	4910 May 04 13:35	15°♍13'24	0°37'14
direct	4902 Jun 11 06:34	5°♄14'12		min. Earth dist.	4910 May 05 07:08	15°♍11'30	17.37686 AU
conjunction	4902 Sep 30 23:18	9°♄41'37	0°46'19		4910 May 09 17:14	15°♍	
minimum elong	4902 Sep 30 23:18	9°♄41'37	0°46'19	direct	4910 Jul 19 18:51	13°♍07'36	
max. Earth dist.	4902 Sep 30 02:25	9°♄38'23	19.44998 AU		4910 Sep 25 06:38	15°♍	
retrograde	4903 Jan 18 02:29	14°♄04'47		max. Earth dist.	4910 Nov 08 05:23	17°♍34'57	19.38183 AU
opposition	4903 Apr 01 18:35	12°♄01'50	0°51'14	conjunction	4910 Nov 09 01:01	17°♍38'02	0°32'00
min. Earth dist.	4903 Apr 02 12:45	11°♄59'51	17.43547 AU	minimum elong	4910 Nov 09 01:01	17°♍38'02	0°32'01
direct	4903 Jun 16 07:06	9°♄56'13		retrograde	4911 Feb 24 23:16	22°♍00'35	
max. Earth dist.	4903 Oct 05 04:26	14°♄20'57	19.42165 AU	opposition	4911 May 09 13:51	19°♍58'33	0°34'05
conjunction	4903 Oct 06 02:36	14°♄24'24	0°45'32	min. Earth dist.	4911 May 10 06:03	19°♍56'47	17.38836 AU
minimum elong	4903 Oct 06 02:36	14°♄24'24	0°45'33	direct	4911 Jul 24 22:32	17°♍52'48	
retrograde	4904 Jan 23 00:39	18°♄47'44		max. Earth dist.	4911 Nov 13 08:46	22°♍20'06	19.39539 AU
opposition	4904 Apr 05 16:40	16°♄44'47	0°50'12	conjunction	4911 Nov 14 03:22	22°♍23'01	0°29'03
min. Earth dist.	4904 Apr 06 11:10	16°♄42'46	17.41005 AU	minimum elong	4911 Nov 14 03:22	22°♍23'01	0°29'04
direct	4904 Jun 20 07:17	14°♄39'00		retrograde	4912 Feb 29 21:37	26°♍45'08	
max. Earth dist.	4904 Oct 09 09:02	19°♄04'34	19.39909 AU	opposition	4912 May 13 14:33	24°♍43'12	0°30'41
conjunction	4904 Oct 10 06:05	19°♄07'51	0°44'27	min. Earth dist.	4912 May 14 07:15	24°♍41'24	17.40399 AU
minimum elong	4904 Oct 10 06:06	19°♄07'51	0°44'27	direct	4912 Jul 29 00:08	22°♍37'32	
retrograde	4905 Jan 27 00:30	23°♄31'17		max. Earth dist.	4912 Nov 17 10:23	27°♍04'28	19.41317 AU
opposition	4905 Apr 10 15:10	21°♄28'24	0°48'50	conjunction	4912 Nov 18 04:56	27°♍07'23	0°25'55
min. Earth dist.	4905 Apr 11 09:08	21°♄26'26	17.39041 AU	minimum elong	4912 Nov 18 04:56	27°♍07'23	0°25'56
direct	4905 Jun 25 09:28	19°♄22'31			4913 Jan 06 22:52	0°♄	
max. Earth dist.	4905 Oct 14 11:47	23°♄48'33	19.38254 AU	retrograde	4913 Mar 05 21:15	1°♄28'59	
conjunction	4905 Oct 15 09:30	23°♄51'56	0°43'04		4913 May 05 18:41	30°♍	
minimum elong	4905 Oct 15 09:30	23°♄51'56	0°43'05	opposition	4913 May 18 15:05	29°♍27'09	0°27'06
retrograde	4906 Jan 31 22:50	28°♄15'25		min. Earth dist.	4913 May 19 06:06	29°♍25'32	17.42377 AU
opposition	4906 Apr 15 14:09	26°♄12'38	0°47'08	direct	4913 Aug 03 04:15	27°♍21'34	
min. Earth dist.	4906 Apr 16 08:28	26°♄10'38	17.37698 AU		4913 Oct 23 21:43	0°♄	
direct	4906 Jun 30 10:10	24°♄06'42		conjunction	4913 Nov 23 06:05	1°♄50'54	0°22'37
conjunction	4906 Oct 20 12:52	28°♄36'35	0°41'23	minimum elong	4913 Nov 23 06:05	1°♄50'54	0°22'38
minimum elong	4906 Oct 20 12:52	28°♄36'35	0°41'23	max. Earth dist.	4913 Nov 22 13:19	1°♄48'17	19.43506 AU
max. Earth dist.	4906 Oct 19 16:10	28°♄33'21	19.37211 AU	retrograde	4914 Mar 10 18:30	6°♄11'55	
	4906 Nov 12 02:21	0°♍		opposition	4914 May 23 15:35	4°♄10'11	0°23'20
retrograde	4907 Feb 05 23:25	3°♍00'02		min. Earth dist.	4914 May 24 06:44	4°♄08'33	17.44778 AU
opposition	4907 Apr 20 13:25	0°♍57'24	0°45'06	direct	4914 Aug 08 06:27	2°♄04'41	
min. Earth dist.	4907 Apr 21 06:51	0°♍55'30	17.36926 AU	conjunction	4914 Nov 28 06:21	6°♄33'23	0°19'11
	4907 May 13 07:58	30°♍		minimum elong	4914 Nov 28 06:21	6°♄33'23	0°19'11
direct	4907 Jul 05 13:17	28°♄51'29		max. Earth dist.	4914 Nov 27 13:39	6°♄30'46	19.46133 AU
	4907 Aug 26 05:22	0°♍		retrograde	4915 Mar 15 16:44	10°♄53'45	
conjunction	4907 Oct 25 16:16	3°♍21'43	0°39'26	opposition	4915 May 28 15:51	8°♄52'05	0°19'25
minimum elong	4907 Oct 25 16:16	3°♍21'43	0°39'26	min. Earth dist.	4915 May 29 05:12	8°♄50'39	17.47617 AU
max. Earth dist.	4907 Oct 24 19:23	3°♍18'27	19.36715 AU	direct	4915 Aug 13 10:33	6°♄46'42	
retrograde	4908 Feb 10 22:21	7°♍45'04		conjunction	4915 Dec 03 06:02	11°♄14'38	0°15'37
opposition	4908 Apr 24 13:08	5°♍42'36	0°42'46	minimum elong	4915 Dec 03 06:02	11°♄14'38	0°15'38
min. Earth dist.	4908 Apr 25 07:13	5°♍40'37	17.36701 AU	behind sun begin	4915 Dec 03 04:30	11°♄14'24	
direct	4908 Jul 09 14:22	3°♍36'41		behind sun end	4915 Dec 03 07:33	11°♄14'52	
conjunction	4908 Oct 29 19:31	8°♍07'08	0°37'12	max. Earth dist.	4915 Dec 02 15:43	11°♄12'25	19.49195 AU
minimum elong	4908 Oct 29 19:31	8°♍07'08	0°37'13	retrograde	4916 Mar 19 12:52	15°♄34'17	
				opposition	4916 Jun 01 16:03	13°♄32'44	0°15'23

min. Earth dist.	4916 Jun 02 04:56	13°♂31'21	17.50904 AU	conjunction	4923 Jan 04 04:23	13°♂24'57	0°-10'-22
direct	4916 Aug 17 12:43	11°♂27'29		minimum elong	4923 Jan 04 04:23	13°♂24'56	0°10'21
				behind sun begin	4923 Jan 03 23:09	13°♂24'09	
conjunction	4916 Dec 07 04:43	15°♂54'33	0°11'59	behind sun end	4923 Jan 04 09:37	13°♂25'44	
minimum elong	4916 Dec 07 04:43	15°♂54'33	0°11'59	max. Earth dist.	4923 Jan 04 00:41	13°♂24'24	19.83093 AU
behind sun begin	4916 Dec 07 00:08	15°♂53'51		retrograde	4923 Apr 21 06:27	17°♂39'06	
behind sun end	4916 Dec 07 09:18	15°♂55'15		opposition	4923 Jul 05 08:52	15°♂38'53	0°-13'-26
max. Earth dist.	4916 Dec 06 14:48	15°♂52'23	19.52731 AU	min. Earth dist.	4923 Jul 05 11:23	15°♂38'37	17.86080 AU
retrograde	4917 Mar 24 10:14	20°♂13'28		direct	4923 Sep 20 12:31	13°♂35'48	
opposition	4917 Jun 06 15:59	18°♂12'01	0°11'17				
min. Earth dist.	4917 Jun 07 02:51	18°♂10'51	17.54688 AU	conjunction	4924 Jan 08 21:31	17°♂55'00	0°-13'-55
direct	4917 Aug 22 15:21	16°♂06'56		minimum elong	4924 Jan 08 21:32	17°♂55'00	0°13'55
				behind sun begin	4924 Jan 08 18:03	17°♂54'29	
conjunction	4917 Dec 12 02:39	20°♂33'04	0°08'17	behind sun end	4924 Jan 09 01:00	17°♂55'32	
minimum elong	4917 Dec 12 02:38	20°♂33'04	0°08'18	max. Earth dist.	4924 Jan 08 19:54	17°♂54'46	19.89124 AU
behind sun begin	4917 Dec 11 20:46	20°♂32'10		retrograde	4924 Apr 25 01:14	22°♂08'20	
behind sun end	4917 Dec 12 08:30	20°♂33'57		opposition	4924 Jul 09 06:19	20°♂08'19	0°-17'-20
max. Earth dist.	4917 Dec 11 15:33	20°♂31'21	19.56760 AU	min. Earth dist.	4924 Jul 09 06:55	20°♂08'15	17.92154 AU
retrograde	4918 Mar 29 05:51	24°♂51'13		direct	4924 Sep 24 11:34	18°♂05'37	
opposition	4918 Jun 11 15:41	22°♂49'55	0°07'08				
min. Earth dist.	4918 Jun 12 01:27	22°♂48'52	17.58953 AU	conjunction	4925 Jan 12 13:51	22°♂23'29	0°-17'-22
direct	4918 Aug 27 16:40	20°♂45'05		minimum elong	4925 Jan 12 13:50	22°♂23'29	0°17'22
				max. Earth dist.	4925 Jan 12 13:11	22°♂23'23	19.95236 AU
conjunction	4918 Dec 16 23:44	25°♂10'11	0°04'34	retrograde	4925 Apr 29 18:01	26°♂35'59	
minimum elong	4918 Dec 16 23:45	25°♂10'11	0°04'34	opposition	4925 Jul 14 03:21	24°♂36'07	0°-21'-7
behind sun begin	4918 Dec 16 17:14	25°♂09'12		min. Earth dist.	4925 Jul 14 03:19	24°♂36'08	17.98304 AU
behind sun end	4918 Dec 17 06:15	25°♂11'10		direct	4925 Sep 29 07:13	22°♂33'47	
max. Earth dist.	4918 Dec 16 13:14	25°♂08'34	19.61272 AU				
retrograde	4919 Apr 03 02:10	29°♂27'33		conjunction	4926 Jan 17 05:21	26°♂50'17	0°-20'-42
opposition	4919 Jun 16 14:53	27°♂26'26	0°02'57	minimum elong	4926 Jan 17 05:20	26°♂50'17	0°20'42
min. Earth dist.	4919 Jun 16 22:52	27°♂25'35	17.63696 AU	max. Earth dist.	4926 Jan 17 06:20	26°♂50'26	20.01395 AU
direct	4919 Sep 01 17:07	25°♂21'53			4926 Mar 16 12:32	0°≈	
				retrograde	4926 May 04 11:24	1°≈01'55	
conjunction	4919 Dec 21 20:12	29°♂45'57	0°00'46		4926 Jun 24 15:44	30°♂	
minimum elong	4919 Dec 21 20:13	29°♂45'57	0°00'47	opposition	4926 Jul 18 23:41	29°♂02'13	0°-24'-45
behind sun begin	4919 Dec 21 13:36	29°♂44'57		min. Earth dist.	4926 Jul 18 21:34	29°♂02'26	18.04451 AU
behind sun end	4919 Dec 22 02:50	29°♂46'57		direct	4926 Oct 04 05:30	27°♂00'13	
max. Earth dist.	4919 Dec 21 12:27	29°♂44'46	19.66235 AU		4926 Dec 31 23:15	0°≈	
	4919 Dec 25 14:30	0°♂					
desc. node	4920 Mar 03 23:21	3°♂31'11		conjunction	4927 Jan 21 20:01	1°≈15'19	0°-23'-53
retrograde	4920 Apr 06 21:47	4°♂02'31		minimum elong	4927 Jan 21 20:01	1°≈15'19	0°23'55
opposition	4920 Jun 20 13:59	2°♂01'38	0°-1'-12	max. Earth dist.	4927 Jan 21 22:06	1°≈15'38	20.07528 AU
min. Earth dist.	4920 Jun 20 20:30	2°♂00'56	17.68845 AU	retrograde	4927 May 09 02:43	5°≈26'06	
	4920 Aug 26 16:59	30°♂		opposition	4927 Jul 23 19:30	3°≈26'30	0°-28'-12
direct	4920 Sep 05 17:37	29°♂57'26		min. Earth dist.	4927 Jul 23 16:59	3°≈26'46	18.10579 AU
	4920 Sep 15 15:22	0°♂		direct	4927 Oct 09 00:08	1°≈24'50	
conjunction	4920 Dec 25 15:36	4°♂20'21	0°-3'-3	conjunction	4928 Jan 26 09:51	5°≈38'30	0°-26'-56
minimum elong	4920 Dec 25 15:36	4°♂20'21	0°03'02	minimum elong	4928 Jan 26 09:51	5°≈38'30	0°26'55
behind sun begin	4920 Dec 25 09:01	4°♂19'21		max. Earth dist.	4928 Jan 26 13:23	5°≈39'02	20.13644 AU
behind sun end	4920 Dec 25 22:12	4°♂21'20		retrograde	4928 May 12 18:18	9°≈48'26	
max. Earth dist.	4920 Dec 25 08:39	4°♂19'17	19.71573 AU	opposition	4928 Jul 27 14:39	7°≈48'55	0°-31'-28
retrograde	4921 Apr 11 17:03	8°♂36'09		min. Earth dist.	4928 Jul 27 09:48	7°≈49'25	18.16672 AU
opposition	4921 Jun 25 12:43	6°♂35'28	0°-5'-21	direct	4928 Oct 12 21:13	5°≈47'33	
min. Earth dist.	4921 Jun 25 17:48	6°♂34'56	17.74352 AU				
direct	4921 Sep 10 16:02	4°♂31'38		conjunction	4929 Jan 29 22:38	9°≈59'46	0°-29'-47
				minimum elong	4929 Jan 29 22:38	9°≈59'46	0°29'48
conjunction	4921 Dec 30 10:26	8°♂53'22	0°-6'-44	max. Earth dist.	4929 Jan 30 03:46	10°≈00'32	20.19721 AU
minimum elong	4921 Dec 30 10:25	8°♂53'22	0°06'45	retrograde	4929 May 17 07:57	14°≈08'51	
behind sun begin	4921 Dec 30 04:15	8°♂52'26		opposition	4929 Aug 01 09:15	12°≈09'23	0°-34'-32
behind sun end	4921 Dec 30 16:36	8°♂54'18		min. Earth dist.	4929 Aug 01 03:56	12°≈09'56	18.22753 AU
max. Earth dist.	4921 Dec 30 05:57	8°♂52'42	19.77224 AU	direct	4929 Oct 17 14:39	10°≈08'19	
retrograde	4922 Apr 16 12:23	13°♂08'20					
opposition	4922 Jun 30 10:54	11°♂07'54	0°-9'-26	conjunction	4930 Feb 03 10:42	14°≈19'05	0°-32'-27
min. Earth dist.	4922 Jun 30 14:22	11°♂07'32	17.80116 AU	minimum elong	4930 Feb 03 10:42	14°≈19'05	0°32'27
direct	4922 Sep 15 15:47	9°♂04'27		max. Earth dist.	4930 Feb 03 17:13	14°≈20'04	20.25800 AU
					4930 Feb 14 18:35	15°≈	

retrograde	4930 May 21 21:56	18° <del>27</del> 21		minimum elong	4938 Mar 08 11:18	17° <del>56</del> 12	0°45'59
opposition	4930 Aug 06 02:48	16° <del>27</del> 57	0°-37'-22	max. Earth dist.	4938 Mar 09 03:27	17° <del>58</del> 34	20.71907 AU
min. Earth dist.	4930 Aug 05 18:59	16° <del>28</del> 45	18.28831 AU	retrograde	4938 Jun 24 19:42	21° <del>59</del> 31	
	4930 Sep 15 07:10	15° <del>28</del>		min. Earth dist.	4938 Sep 09 10:25	20° <del>02</del> 34	18.74303 AU
direct	4930 Oct 22 09:20	14° <del>27</del> 10		opposition	4938 Sep 10 03:09	20° <del>00</del> 54	0°-51'-15
	4930 Nov 27 08:16	15° <del>27</del>		direct	4938 Nov 25 20:56	18° <del>02</del> 48	
conjunction	4931 Feb 07 21:59	18° <del>36</del> 33	0°-34'-55	conjunction	4939 Mar 12 18:21	22° <del>02</del> 39	0°-46'-37
minimum elong	4931 Feb 07 21:59	18° <del>36</del> 33	0°34'55	minimum elong	4939 Mar 12 18:21	22° <del>02</del> 39	0°46'38
max. Earth dist.	4931 Feb 08 06:19	18° <del>37</del> 48	20.31875 AU	max. Earth dist.	4939 Mar 13 11:47	22° <del>05</del> 12	20.76541 AU
retrograde	4931 May 26 10:10	22° <del>44</del> 02		retrograde	4939 Jun 29 04:47	26° <del>05</del> 32	
opposition	4931 Aug 10 20:03	20° <del>44</del> 42	0°-39'-59	opposition	4939 Sep 14 15:54	24° <del>06</del> 57	0°-51'-50
min. Earth dist.	4931 Aug 10 11:43	20° <del>45</del> 33	18.34921 AU	min. Earth dist.	4939 Sep 13 23:30	24° <del>08</del> 36	18.78728 AU
direct	4931 Oct 27 00:53	18° <del>44</del> 14		direct	4939 Nov 30 07:22	22° <del>09</del> 07	
conjunction	4932 Feb 12 08:23	22° <del>52</del> 15	0°-37'-10	conjunction	4940 Mar 16 00:52	26° <del>08</del> 00	0°-47'-1
minimum elong	4932 Feb 12 08:22	22° <del>52</del> 14	0°37'11	minimum elong	4940 Mar 16 00:52	26° <del>08</del> 00	0°47'01
max. Earth dist.	4932 Feb 12 17:57	22° <del>53</del> 40	20.37967 AU	max. Earth dist.	4940 Mar 16 18:00	26° <del>10</del> 30	20.80752 AU
retrograde	4932 May 29 23:19	26° <del>59</del> 00			4940 Jun 12 02:00	0° <del>00</del>	
opposition	4932 Aug 14 12:31	24° <del>59</del> 45	0°-42'-21	retrograde	4940 Jul 02 15:42	0° <del>10</del> 31	
min. Earth dist.	4932 Aug 14 01:32	25° <del>00</del> 52	18.41005 AU		4940 Jul 23 12:31	30° <del>00</del>	
direct	4932 Oct 30 17:23	22° <del>59</del> 38		min. Earth dist.	4940 Sep 17 10:22	28° <del>13</del> 42	18.82717 AU
conjunction	4933 Feb 15 18:15	27° <del>06</del> 19	0°-39'-12	opposition	4940 Sep 18 03:59	28° <del>11</del> 56	0°-52'-8
minimum elong	4933 Feb 15 18:15	27° <del>06</del> 19	0°39'12	direct	4940 Dec 03 17:26	26° <del>14</del> 18	
max. Earth dist.	4933 Feb 16 05:44	27° <del>08</del> 02	20.44026 AU		4941 Mar 16 18:55	0° <del>00</del>	
	4933 Apr 10 10:04	0° <del>00</del>		conjunction	4941 Mar 20 07:13	0° <del>12</del> 18	0°-47'-11
retrograde	4933 Jun 03 10:35	1° <del>12</del> 23		minimum elong	4941 Mar 20 07:13	0° <del>12</del> 18	0°47'12
	4933 Jul 30 10:16	30° <del>00</del>		max. Earth dist.	4941 Mar 21 01:33	0° <del>14</del> 58	20.84508 AU
opposition	4933 Aug 19 04:23	29° <del>13</del> 15	0°-44'-28	retrograde	4941 Jul 06 23:49	4° <del>14</del> 27	
min. Earth dist.	4933 Aug 18 17:06	29° <del>14</del> 24	18.47043 AU	opposition	4941 Sep 22 15:27	2° <del>15</del> 50	0°-52'-10
direct	4933 Nov 04 06:41	27° <del>13</del> 29		min. Earth dist.	4941 Sep 21 22:14	2° <del>17</del> 33	18.86257 AU
	4934 Jan 28 16:44	0° <del>00</del>		direct	4941 Dec 08 03:10	0° <del>18</del> 22	
conjunction	4934 Feb 20 03:25	1° <del>18</del> 54	0°-41'-1	conjunction	4942 Mar 24 13:05	4° <del>15</del> 32	0°-47'-7
minimum elong	4934 Feb 20 03:25	1° <del>18</del> 54	0°41'02	minimum elong	4942 Mar 24 13:05	4° <del>15</del> 32	0°47'07
max. Earth dist.	4934 Feb 20 15:44	1° <del>20</del> 43	20.50021 AU	max. Earth dist.	4942 Mar 25 07:01	4° <del>18</del> 08	20.87848 AU
retrograde	4934 Jun 07 23:26	5° <del>24</del> 19		retrograde	4942 Jul 11 10:14	8° <del>17</del> 23	
opposition	4934 Aug 23 19:33	3° <del>25</del> 18	0°-46'-21	min. Earth dist.	4942 Sep 26 08:04	6° <del>20</del> 32	18.89401 AU
min. Earth dist.	4934 Aug 23 06:00	3° <del>26</del> 40	18.52971 AU	opposition	4942 Sep 27 02:24	6° <del>18</del> 42	0°-51'-57
direct	4934 Nov 08 21:18	1° <del>25</del> 54		direct	4942 Dec 12 11:55	4° <del>21</del> 21	
conjunction	4935 Feb 24 12:04	5° <del>30</del> 05	0°-42'-36	conjunction	4943 Mar 28 18:37	8° <del>17</del> 46	0°-46'-48
minimum elong	4935 Feb 24 12:04	5° <del>30</del> 05	0°42'37	minimum elong	4943 Mar 28 18:37	8° <del>17</del> 46	0°46'50
max. Earth dist.	4935 Feb 25 02:10	5° <del>32</del> 10	20.55859 AU	max. Earth dist.	4943 Mar 29 13:56	8° <del>20</del> 34	20.90795 AU
retrograde	4935 Jun 12 09:47	9° <del>34</del> 54		retrograde	4943 Jul 15 17:36	12° <del>19</del> 22	
opposition	4935 Aug 28 10:21	7° <del>36</del> 01	0°-47'-58	opposition	4943 Oct 01 12:58	10° <del>20</del> 37	0°-51'-28
min. Earth dist.	4935 Aug 27 20:44	7° <del>37</del> 23	18.58721 AU	min. Earth dist.	4943 Sep 30 18:46	10° <del>22</del> 26	18.92176 AU
direct	4935 Nov 13 09:16	5° <del>36</del> 58		direct	4943 Dec 16 20:37	8° <del>23</del> 25	
conjunction	4936 Feb 28 20:13	9° <del>39</del> 59	0°-43'-57	conjunction	4944 Mar 31 23:55	12° <del>19</del> 08	0°-46'-15
minimum elong	4936 Feb 28 20:13	9° <del>39</del> 59	0°43'59	minimum elong	4944 Mar 31 23:55	12° <del>19</del> 08	0°46'17
max. Earth dist.	4936 Feb 29 10:48	9° <del>42</del> 08	20.61504 AU	max. Earth dist.	4944 Apr 01 18:56	12° <del>21</del> 53	20.93414 AU
retrograde	4936 Jun 15 22:20	13° <del>44</del> 15		retrograde	4944 Jul 19 03:55	16° <del>20</del> 33	
min. Earth dist.	4936 Aug 31 08:58	11° <del>47</del> 02	18.64242 AU	opposition	4944 Oct 04 22:57	14° <del>21</del> 43	0°-50'-44
opposition	4936 Sep 01 00:30	11° <del>45</del> 28	0°-49'-19	min. Earth dist.	4944 Oct 04 03:42	14° <del>23</del> 39	18.94642 AU
direct	4936 Nov 16 22:19	9° <del>46</del> 46		direct	4944 Dec 20 04:36	12° <del>24</del> 39	
conjunction	4937 Mar 04 03:56	13° <del>48</del> 40	0°-45'-5	conjunction	4945 Apr 05 05:09	16° <del>19</del> 47	0°-45'-29
minimum elong	4937 Mar 04 03:56	13° <del>48</del> 40	0°45'06	minimum elong	4945 Apr 05 05:09	16° <del>19</del> 47	0°45'30
max. Earth dist.	4937 Mar 04 20:07	13° <del>51</del> 03	20.66871 AU	max. Earth dist.	4945 Apr 06 01:29	16° <del>22</del> 43	20.95712 AU
retrograde	4937 Jun 20 08:04	17° <del>52</del> 26		retrograde	4945 Jul 23 11:11	20° <del>21</del> 04	
opposition	4937 Sep 05 14:14	15° <del>53</del> 45	0°-50'-25	opposition	4945 Oct 09 08:35	18° <del>22</del> 12	0°-49'-45
min. Earth dist.	4937 Sep 04 22:56	15° <del>55</del> 17	18.69454 AU	min. Earth dist.	4945 Oct 08 13:29	18° <del>24</del> 07	18.96784 AU
direct	4937 Nov 21 09:24	13° <del>55</del> 22		direct	4945 Dec 24 11:40	16° <del>25</del> 16	
conjunction	4938 Mar 08 11:18	17° <del>56</del> 12	0°-45'-58	conjunction	4946 Apr 09 10:11	20° <del>19</del> 53	0°-44'-29

minimum elong	4946 Apr 09 10:11	20°♈19'53	0°44'31	direct	4954 Jan 25 15:50	18°♏23'45	
max. Earth dist.	4946 Apr 10 06:01	20°♈22'45	20.97702 AU				
retrograde	4946 Jul 27 21:00	24°♈21'06		conjunction	4954 May 11 07:36	22°♏17'27	0°-29'-27
opposition	4946 Oct 13 17:44	22°♈22'12	0°-48'-31	minimum elong	4954 May 11 07:36	22°♏17'27	0°29'28
min. Earth dist.	4946 Oct 12 21:53	22°♈24'11	18.98614 AU	max. Earth dist.	4954 May 12 00:57	22°♏19'56	20.99192 AU
direct	4946 Dec 28 19:16	20°♈25'23		retrograde	4954 Aug 29 18:13	26°♏20'01	
				opposition	4954 Nov 15 12:39	24°♏20'35	0°-31'-4
conjunction	4947 Apr 13 15:18	24°♈19'37	0°-43'-17	min. Earth dist.	4954 Nov 14 20:20	24°♏22'14	18.98255 AU
minimum elong	4947 Apr 13 15:19	24°♈19'37	0°43'18	direct	4955 Jan 29 21:44	22°♏23'56	
max. Earth dist.	4947 Apr 14 12:21	24°♈22'39	20.99363 AU				
retrograde	4947 Aug 01 04:36	28°♈20'50		conjunction	4955 May 15 14:33	26°♏17'51	0°-26'-48
min. Earth dist.	4947 Oct 17 07:10	26°♈23'52	19.00103 AU	minimum elong	4955 May 15 14:33	26°♏17'51	0°26'51
opposition	4947 Oct 18 02:46	26°♈21'54	0°-47'-4	max. Earth dist.	4955 May 16 08:08	26°♏20'22	20.97158 AU
direct	4948 Jan 02 01:24	24°♈25'13			4955 Aug 04 19:59	0°♊	
				retrograde	4955 Sep 03 02:32	0°♊20'46	
conjunction	4948 Apr 16 20:17	28°♈19'07	0°-41'-52		4955 Oct 02 18:59	30°♊♏	
minimum elong	4948 Apr 16 20:17	28°♈19'07	0°41'54	opposition	4955 Nov 19 20:29	28°♏21'10	0°-28'-3
max. Earth dist.	4948 Apr 17 16:39	28°♈22'02	21.00686 AU	min. Earth dist.	4955 Nov 19 04:56	28°♏22'44	18.95992 AU
	4948 May 16 22:36	0°♏		direct	4956 Feb 03 04:19	26°♏24'22	
retrograde	4948 Aug 04 14:07	2°♏20'23			4956 May 13 12:17	0°♊	
opposition	4948 Oct 21 11:30	0°♏21'26	0°-45'-23				
min. Earth dist.	4948 Oct 20 15:33	0°♏23'26	19.01240 AU	conjunction	4956 May 18 21:37	0°♊18'34	0°-24'-1
	4948 Oct 30 10:58	30°♊♈		minimum elong	4956 May 18 21:37	0°♊18'34	0°24'02
direct	4949 Jan 05 08:30	28°♈24'51		max. Earth dist.	4956 May 19 13:29	0°♊20'51	20.94700 AU
	4949 Mar 09 05:38	0°♏		retrograde	4956 Sep 06 12:29	4°♊21'54	
				opposition	4956 Nov 23 04:16	2°♊22'06	0°-24'-55
conjunction	4949 Apr 21 01:39	2°♏18'32	0°-40'-16	min. Earth dist.	4956 Nov 22 13:31	2°♊23'36	18.93338 AU
minimum elong	4949 Apr 21 01:39	2°♏18'32	0°40'17	direct	4957 Feb 06 10:09	0°♊25'07	
max. Earth dist.	4949 Apr 21 22:54	2°♏21'35	21.01620 AU				
retrograde	4949 Aug 08 22:07	6°♏19'54		conjunction	4957 May 23 05:20	4°♊19'44	0°-21'-6
opposition	4949 Oct 25 19:53	4°♏20'56	0°-43'-30	minimum elong	4957 May 23 05:20	4°♊19'44	0°21'08
min. Earth dist.	4949 Oct 25 00:31	4°♏22'52	19.01966 AU	max. Earth dist.	4957 May 23 21:28	4°♊22'03	20.91859 AU
direct	4950 Jan 09 14:32	2°♏24'27		retrograde	4957 Sep 10 20:55	8°♊23'29	
				opposition	4957 Nov 27 11:55	6°♊23'32	0°-21'-38
conjunction	4950 Apr 25 07:03	6°♏17'58	0°-38'-27	min. Earth dist.	4957 Nov 26 21:50	6°♊24'58	18.90324 AU
minimum elong	4950 Apr 25 07:03	6°♏17'58	0°38'29	direct	4958 Feb 10 16:37	4°♊26'22	
max. Earth dist.	4950 Apr 26 03:10	6°♏20'51	21.02140 AU				
retrograde	4950 Aug 13 07:14	10°♏19'31		conjunction	4958 May 27 13:17	8°♊21'29	0°-18'-5
min. Earth dist.	4950 Oct 29 09:00	8°♏22'26	19.02260 AU	minimum elong	4958 May 27 13:17	8°♊21'29	0°18'07
opposition	4950 Oct 30 04:15	8°♏20'30	0°-41'-24	max. Earth dist.	4958 May 28 03:40	8°♊23'32	20.88699 AU
direct	4951 Jan 13 20:52	6°♏24'04		retrograde	4958 Sep 15 07:27	12°♊25'45	
				opposition	4958 Dec 01 19:49	10°♊25'38	0°-18'-14
conjunction	4951 Apr 29 12:43	10°♏17'32	0°-36'-28	min. Earth dist.	4958 Dec 01 06:35	10°♊26'59	18.87018 AU
minimum elong	4951 Apr 29 12:43	10°♏17'32	0°36'29	direct	4959 Feb 14 22:32	8°♊28'17	
max. Earth dist.	4951 Apr 30 09:23	10°♏20'30	21.02188 AU				
retrograde	4951 Aug 17 15:43	14°♏19'18		conjunction	4959 May 31 21:46	12°♊23'59	0°-14'-59
opposition	4951 Nov 03 12:34	12°♏20'14	0°-39'-5	minimum elong	4959 May 31 21:47	12°♊23'59	0°15'00
min. Earth dist.	4951 Nov 02 18:04	12°♏22'05	19.02054 AU	behind sun begin	4959 May 31 19:25	12°♊23'39	
direct	4952 Jan 18 03:17	10°♏23'50		behind sun end	4959 Jun 01 00:08	12°♊24'19	
				max. Earth dist.	4959 Jun 01 12:29	12°♊26'05	20.85249 AU
conjunction	4952 May 02 18:43	14°♏17'18	0°-34'-18	retrograde	4959 Sep 19 16:58	16°♊28'50	
minimum elong	4952 May 02 18:43	14°♏17'18	0°34'19	opposition	4959 Dec 06 03:50	14°♊28'34	0°-14'-45
max. Earth dist.	4952 May 03 13:47	14°♏20'02	21.01732 AU	min. Earth dist.	4959 Dec 05 15:11	14°♊29'52	18.83426 AU
	4952 May 15 05:34	15°♏		direct	4960 Feb 19 05:16	12°♊31'03	
retrograde	4952 Aug 21 00:37	18°♏19'18					
opposition	4952 Nov 06 20:40	16°♏20'09	0°-36'-36	conjunction	4960 Jun 04 06:52	16°♊27'25	0°-11'-47
min. Earth dist.	4952 Nov 06 02:44	16°♏21'57	19.01332 AU	minimum elong	4960 Jun 04 06:52	16°♊27'25	0°11'49
	4952 Dec 13 11:21	15°♊♏		behind sun begin	4960 Jun 04 02:14	16°♊26'46	
direct	4953 Jan 21 09:10	14°♏23'42		behind sun end	4960 Jun 04 11:30	16°♊28'04	
	4953 Feb 28 05:36	15°♏		max. Earth dist.	4960 Jun 04 19:37	16°♊29'15	20.81538 AU
				retrograde	4960 Sep 23 03:59	20°♊32'54	
conjunction	4953 May 07 01:08	18°♏17'16	0°-31'-57	opposition	4960 Dec 09 11:57	18°♊32'31	0°-11'-10
minimum elong	4953 May 07 01:09	18°♏17'16	0°31'59	min. Earth dist.	4960 Dec 09 00:26	18°♊33'42	18.79590 AU
max. Earth dist.	4953 May 07 20:18	18°♏20'01	21.00729 AU	direct	4961 Feb 22 11:23	16°♊34'48	
retrograde	4953 Aug 25 09:07	22°♏19'32					
min. Earth dist.	4953 Nov 10 11:41	20°♏21'59	19.00049 AU	conjunction	4961 Jun 08 16:45	20°♊31'58	0°-8'-32
opposition	4953 Nov 11 04:43	20°♏20'16	0°-33'-55	minimum elong	4961 Jun 08 16:45	20°♊31'58	0°08'33

behind sun begin	4961 Jun 08 10:56	20°II31'09		retrograde	4967 Oct 23 23:31	19°☾39'40	
behind sun end	4961 Jun 08 22:34	20°II32'47		opposition	4968 Jan 08 06:31	17°☾38'30	0°14'57
max. Earth dist.	4961 Jun 09 05:36	20°II33'48	20.77571 AU	min. Earth dist.	4968 Jan 08 03:45	17°☾38'48	18.44834 AU
retrograde	4961 Sep 27 14:58	24°II38'06		direct	4968 Mar 22 21:33	15°☾39'04	
opposition	4961 Dec 13 20:21	22°II37'38	0°-7'-31				
min. Earth dist.	4961 Dec 13 09:30	22°II38'45	18.75489 AU	conjunction	4968 Jul 08 10:52	19°☾43'32	0°15'09
direct	4962 Feb 26 18:40	20°II39'45		minimum elong	4968 Jul 08 10:52	19°☾43'32	0°15'09
				behind sun begin	4968 Jul 08 08:52	19°☾43'15	
conjunction	4962 Jun 13 03:01	24°II37'46	0°-5'-13	behind sun end	4968 Jul 08 12:53	19°☾43'49	
minimum elong	4962 Jun 13 03:00	24°II37'46	0°05'16	max. Earth dist.	4968 Jul 08 11:50	19°☾43'40	20.41821 AU
behind sun begin	4962 Jun 12 20:33	24°II36'51		retrograde	4968 Oct 27 14:17	23°☾55'07	
behind sun end	4962 Jun 13 09:28	24°II38'40		opposition	4969 Jan 11 17:34	21°☾53'45	0°18'37
max. Earth dist.	4962 Jun 13 13:42	24°II39'17	20.73355 AU	min. Earth dist.	4969 Jan 11 17:01	21°☾53'49	18.38728 AU
retrograde	4962 Oct 02 02:50	28°II44'38		direct	4969 Mar 27 07:43	19°☾53'56	
opposition	4962 Dec 18 05:09	26°II44'05	0°-3'-49				
min. Earth dist.	4962 Dec 17 19:43	26°II45'03	18.71145 AU	conjunction	4969 Jul 13 03:02	23°☾59'38	0°18'26
direct	4963 Mar 03 01:23	24°II46'01		minimum elong	4969 Jul 13 03:02	23°☾59'38	0°18'24
				max. Earth dist.	4969 Jul 13 03:30	23°☾59'42	20.35631 AU
conjunction	4963 Jun 17 14:20	28°II44'58	0°-1'-51	retrograde	4969 Nov 01 06:19	28°☾12'00	
minimum elong	4963 Jun 17 14:20	28°II44'58	0°01'52	opposition	4970 Jan 16 05:05	26°☾10'27	0°22'13
behind sun begin	4963 Jun 17 07:39	28°II44'01		min. Earth dist.	4970 Jan 16 05:06	26°☾10'27	18.32468 AU
behind sun end	4963 Jun 17 21:02	28°II45'54		direct	4970 Mar 31 19:57	24°☾10'14	
max. Earth dist.	4963 Jun 18 00:55	28°II46'29	20.68874 AU				
	4963 Jul 09 11:58	0°☾		conjunction	4970 Jul 17 19:36	28°☾17'11	0°21'37
retrograde	4963 Oct 06 15:21	2°☾52'35		minimum elong	4970 Jul 17 19:36	28°☾17'11	0°21'37
opposition	4963 Dec 22 14:08	0°☾51'58	0°00'-4	max. Earth dist.	4970 Jul 17 17:32	28°☾16'53	20.29326 AU
min. Earth dist.	4963 Dec 22 05:34	0°☾52'51	18.66517 AU		4970 Aug 16 16:02	0°♈	
asc. node	4963 Dec 31 10:23	0°☾30'08		retrograde	4970 Nov 05 21:11	2°♈30'23	
	4964 Jan 13 06:23	30°♈II		opposition	4971 Jan 20 17:10	0°♈28'37	0°25'42
direct	4964 Mar 06 09:17	28°II53'42		min. Earth dist.	4971 Jan 20 19:17	0°♈28'23	18.26143 AU
	4964 Apr 26 17:03	0°☾			4971 Feb 01 01:54	30°♈☾	
				direct	4971 Apr 05 06:57	28°☾27'59	
conjunction	4964 Jun 21 02:23	2°☾53'40	0°01'39		4971 Jun 05 04:12	0°♈	
minimum elong	4964 Jun 21 02:22	2°☾53'40	0°01'37				
behind sun begin	4964 Jun 20 19:40	2°☾52'43		conjunction	4971 Jul 22 13:19	2°♈36'16	0°24'42
behind sun end	4964 Jun 21 09:04	2°☾54'36		minimum elong	4971 Jul 22 13:19	2°♈36'16	0°24'41
max. Earth dist.	4964 Jun 21 10:19	2°☾54'48	20.64104 AU	max. Earth dist.	4971 Jul 22 10:50	2°♈35'54	20.22987 AU
retrograde	4964 Oct 10 04:36	7°☾02'05		retrograde	4971 Nov 10 14:33	6°♈50'15	
opposition	4964 Dec 25 23:39	5°☾01'22	0°03'41	opposition	4972 Jan 25 05:30	4°♈48'18	0°29'04
min. Earth dist.	4964 Dec 25 17:00	5°☾02'03	18.61590 AU	min. Earth dist.	4972 Jan 25 08:01	4°♈48'02	18.19805 AU
direct	4965 Mar 10 17:10	3°☾02'52		direct	4972 Apr 08 20:52	2°♈47'17	
conjunction	4965 Jun 25 15:24	7°☾03'54	0°05'04	conjunction	4972 Jul 26 07:44	6°♈56'54	0°27'39
minimum elong	4965 Jun 25 15:24	7°☾03'54	0°05'04	minimum elong	4972 Jul 26 07:44	6°♈56'54	0°27'38
behind sun begin	4965 Jun 25 08:53	7°☾02'59		max. Earth dist.	4972 Jul 26 02:50	6°♈56'11	20.16664 AU
behind sun end	4965 Jun 25 21:54	7°☾04'49		retrograde	4972 Nov 14 06:03	11°♈11'43	
max. Earth dist.	4965 Jun 25 22:47	7°☾04'57	20.59003 AU	opposition	4973 Jan 28 18:37	9°♈09'36	0°32'17
retrograde	4965 Oct 14 18:20	11°☾13'06		min. Earth dist.	4973 Jan 28 23:14	9°♈09'07	18.13525 AU
opposition	4965 Dec 30 09:26	9°☾12'16	0°07'27	direct	4973 Apr 13 09:02	7°♈08'12	
min. Earth dist.	4965 Dec 30 03:44	9°☾12'52	18.56315 AU				
direct	4966 Mar 15 01:56	7°☾13'31		conjunction	4973 Jul 31 02:58	11°♈19'12	0°30'28
				minimum elong	4973 Jul 31 02:58	11°♈19'12	0°30'28
conjunction	4966 Jun 30 05:04	11°☾15'39	0°08'27	max. Earth dist.	4973 Jul 30 21:36	11°♈18'25	20.10426 AU
minimum elong	4966 Jun 30 05:03	11°☾15'39	0°08'27		4973 Oct 13 02:47	15°♈	
behind sun begin	4966 Jun 29 23:11	11°☾14'49		retrograde	4973 Nov 19 00:41	15°♈34'50	
behind sun end	4966 Jun 30 10:55	11°☾16'29			4973 Dec 26 06:39	15°♈♈	
max. Earth dist.	4966 Jun 30 09:30	11°☾16'16	20.53570 AU	opposition	4974 Feb 02 08:09	13°♈32'35	0°35'20
retrograde	4966 Oct 19 08:42	15°☾25'39		min. Earth dist.	4974 Feb 02 12:55	13°♈32'05	18.07344 AU
opposition	4967 Jan 03 19:50	13°☾24'40	0°11'13	direct	4974 Apr 18 00:33	11°♈30'50	
min. Earth dist.	4967 Jan 03 16:12	13°☾25'03	18.50724 AU		4974 Jul 23 20:19	15°♈	
direct	4967 Mar 19 11:13	11°☾25'35					
				conjunction	4974 Aug 04 22:59	15°♈43'15	0°33'07
conjunction	4967 Jul 04 19:36	15°☾28'52	0°11'50	minimum elong	4974 Aug 04 22:59	15°♈43'15	0°33'06
minimum elong	4967 Jul 04 19:36	15°☾28'52	0°11'49	max. Earth dist.	4974 Aug 04 15:32	15°♈42'09	20.04312 AU
behind sun begin	4967 Jul 04 14:58	15°☾28'13		retrograde	4974 Nov 23 17:20	19°♈59'42	
behind sun end	4967 Jul 05 00:14	15°☾29'32		opposition	4975 Feb 06 22:29	17°♈57'22	0°38'11
max. Earth dist.	4967 Jul 04 23:28	15°☾29'25	20.47827 AU	min. Earth dist.	4975 Feb 07 05:18	17°♈56'38	18.01317 AU

direct	4975 Apr 22 13:55	15°♏55'17		direct	4983 May 28 19:15	22°♐16'22	
conjunction	4975 Aug 09 19:58	20°♏09'09	0°35'36	conjunction	4983 Sep 16 22:58	26°♐40'54	0°46'56
minimum elong	4975 Aug 09 19:58	20°♏09'09	0°35'36	minimum elong	4983 Sep 16 22:58	26°♐40'54	0°46'57
max. Earth dist.	4975 Aug 09 11:48	20°♏07'55	19.98369 AU	max. Earth dist.	4983 Sep 16 02:54	26°♐37'49	19.56237 AU
retrograde	4975 Nov 28 13:34	24°♏26'25			4983 Nov 16 15:28	0°♏	
opposition	4976 Feb 11 13:19	22°♏24'01	0°40'51	retrograde	4984 Jan 04 15:30	1°♏03'16	
min. Earth dist.	4976 Feb 11 20:19	22°♏23'16	17.95449 AU		4984 Feb 23 18:42	30°♐	
direct	4976 Apr 26 07:02	20°♏21'39		opposition	4984 Mar 18 12:37	29°♐00'28	0°52'24
				min. Earth dist.	4984 Mar 19 05:00	28°♐58'41	17.54124 AU
conjunction	4976 Aug 13 17:49	24°♏36'58	0°37'52	direct	4984 Jun 01 18:13	26°♐55'37	
minimum elong	4976 Aug 13 17:49	24°♏36'58	0°37'52		4984 Aug 29 19:30	0°♏	
max. Earth dist.	4976 Aug 13 07:44	24°♏35'27	19.92571 AU	max. Earth dist.	4984 Sep 20 05:59	1°♏18'10	19.52049 AU
retrograde	4976 Dec 02 07:29	28°♏55'02					
opposition	4977 Feb 15 04:56	26°♏52'37	0°43'17	conjunction	4984 Sep 21 01:45	1°♏21'13	0°47'04
min. Earth dist.	4977 Feb 15 14:12	26°♏51'37	17.89736 AU	minimum elong	4984 Sep 21 01:45	1°♏21'13	0°47'04
direct	4977 Apr 30 22:05	24°♏49'58		retrograde	4985 Jan 08 13:33	5°♏43'56	
				opposition	4985 Mar 23 09:13	3°♏41'04	0°52'23
conjunction	4977 Aug 18 16:32	29°♏06'44	0°39'56	min. Earth dist.	4985 Mar 24 02:35	3°♏39'10	17.50149 AU
minimum elong	4977 Aug 18 16:32	29°♏06'44	0°39'56	direct	4985 Jun 06 15:32	1°♏35'57	
max. Earth dist.	4977 Aug 18 05:16	29°♏05'03	19.86933 AU	max. Earth dist.	4985 Sep 25 07:16	5°♏59'11	19.48308 AU
	4977 Sep 02 11:27	0°♐					
retrograde	4977 Dec 07 04:58	3°♐25'36		conjunction	4985 Sep 26 04:37	6°♏02'29	0°46'54
opposition	4978 Feb 19 21:11	1°♐23'09	0°45'28	minimum elong	4985 Sep 26 04:37	6°♏02'29	0°46'54
min. Earth dist.	4978 Feb 20 06:45	1°♐22'07	17.84163 AU	retrograde	4986 Jan 13 13:05	10°♏25'30	
	4978 Mar 27 03:44	30°♐		opposition	4986 Mar 28 06:15	8°♏22'35	0°52'01
direct	4978 May 05 16:49	29°♏20'13		min. Earth dist.	4986 Mar 28 23:41	8°♏20'40	17.46661 AU
	4978 Jun 13 14:31	0°♐		direct	4986 Jun 11 15:47	6°♏17'12	
				max. Earth dist.	4986 Sep 30 11:22	10°♏41'26	19.45070 AU
conjunction	4978 Aug 23 15:56	3°♐38'25	0°41'47				
minimum elong	4978 Aug 23 15:56	3°♐38'25	0°41'47	conjunction	4986 Oct 01 07:48	10°♏44'37	0°46'24
max. Earth dist.	4978 Aug 23 03:02	3°♐36'28	19.81408 AU	minimum elong	4986 Oct 01 07:48	10°♏44'37	0°46'24
retrograde	4978 Dec 12 00:18	7°♐58'01		retrograde	4987 Jan 18 11:16	15°♏07'50	
opposition	4979 Feb 24 14:20	5°♐55'33	0°47'23	opposition	4987 Apr 02 03:54	13°♏04'55	0°51'19
min. Earth dist.	4979 Feb 25 02:11	5°♐54'16	17.78705 AU	min. Earth dist.	4987 Apr 02 21:37	13°♏02'58	17.43688 AU
direct	4979 May 10 10:05	3°♐52'19		direct	4987 Jun 16 15:01	10°♏59'21	
conjunction	4979 Aug 28 16:15	8°♐11'54	0°43'22	conjunction	4987 Oct 06 11:07	15°♏27'31	0°45'36
minimum elong	4979 Aug 28 16:15	8°♐11'54	0°43'21	minimum elong	4987 Oct 06 11:07	15°♏27'31	0°45'36
max. Earth dist.	4979 Aug 28 01:37	8°♐09'41	19.76010 AU	max. Earth dist.	4987 Oct 05 13:22	15°♏24'08	19.42381 AU
retrograde	4979 Dec 16 22:32	12°♐32'11		retrograde	4988 Jan 23 10:25	19°♏50'54	
opposition	4980 Feb 29 07:52	10°♐29'39	0°49'01	opposition	4988 Apr 06 01:53	17°♏48'00	0°50'15
min. Earth dist.	4980 Feb 29 20:08	10°♐28'20	17.73370 AU	min. Earth dist.	4988 Apr 06 19:44	17°♏46'03	17.41296 AU
direct	4980 May 14 06:30	8°♐26'06		direct	4988 Jun 20 16:20	15°♏42'17	
conjunction	4980 Sep 01 17:16	12°♐47'02	0°44'41	conjunction	4988 Oct 10 14:41	20°♏11'08	0°44'29
minimum elong	4980 Sep 01 17:16	12°♐47'02	0°44'42	minimum elong	4988 Oct 10 14:41	20°♏11'08	0°44'29
max. Earth dist.	4980 Sep 01 01:24	12°♐44'37	19.70732 AU	max. Earth dist.	4988 Oct 09 18:06	20°♏07'56	19.40278 AU
retrograde	4980 Dec 20 19:06	17°♐07'56		retrograde	4989 Jan 27 09:30	24°♏34'37	
opposition	4981 Mar 05 02:19	15°♐05'21	0°50'21	opposition	4989 Apr 11 00:29	22°♏31'48	0°48'51
min. Earth dist.	4981 Mar 05 16:37	15°♐03'48	17.68179 AU	min. Earth dist.	4989 Apr 11 18:01	22°♏29'53	17.39476 AU
direct	4981 May 19 01:28	13°♐01'29		direct	4989 Jun 25 17:35	20°♏26'02	
conjunction	4981 Sep 06 18:35	17°♐23'40	0°45'44	conjunction	4989 Oct 15 18:00	24°♏55'25	0°43'04
minimum elong	4981 Sep 06 18:34	17°♐23'40	0°45'44	minimum elong	4989 Oct 15 18:00	24°♏55'25	0°43'03
max. Earth dist.	4981 Sep 06 00:52	17°♐20'58	19.65642 AU	max. Earth dist.	4989 Oct 14 20:37	24°♏52'05	19.38751 AU
retrograde	4981 Dec 25 18:17	21°♐45'08		retrograde	4990 Feb 01 08:36	29°♏18'57	
opposition	4982 Mar 09 21:11	19°♐42'28	0°51'22	opposition	4990 Apr 15 23:30	27°♏16'15	0°47'06
min. Earth dist.	4982 Mar 10 11:44	19°♐40'54	17.63202 AU	min. Earth dist.	4990 Apr 16 17:24	27°♏14'18	17.38234 AU
direct	4982 May 23 23:19	17°♐38'16		direct	4990 Jun 30 19:11	25°♏10'25	
conjunction	4982 Sep 11 20:37	22°♐01'40	0°46'29	conjunction	4990 Oct 20 21:38	29°♏40'16	0°41'21
minimum elong	4982 Sep 11 20:37	22°♐01'40	0°46'29	minimum elong	4990 Oct 20 21:38	29°♏40'16	0°41'22
max. Earth dist.	4982 Sep 11 02:26	21°♐58'53	19.60782 AU	max. Earth dist.	4990 Oct 20 01:16	29°♏37'06	19.37776 AU
retrograde	4982 Dec 30 15:46	26°♐23'37			4990 Oct 26 03:46	0°♐	
opposition	4983 Mar 14 16:39	24°♐20'54	0°52'03	retrograde	4991 Feb 06 08:55	4°♐03'45	
min. Earth dist.	4983 Mar 15 08:49	24°♐19'08	17.58491 AU	opposition	4991 Apr 20 22:45	2°♐01'11	0°45'02

min. Earth dist.	4991 Apr 21 16:08	1° <del>M</del> 59'18	17.37504 AU	conjunction	4998 Nov 28 15:17	7° <del>7</del> 35'48	0°18'51
	4991 Jun 22 14:56	30° <del>R</del> <del>Ω</del>		minimum elong	4998 Nov 28 15:17	7° <del>7</del> 35'48	0°18'52
direct	4991 Jul 05 21:43	29° <del>Δ</del> 55'21		max. Earth dist.	4998 Nov 27 22:46	7° <del>7</del> 33'13	19.46269 AU
	4991 Jul 19 01:21	0° <del>M</del>		retrograde	4999 Mar 16 01:56	11° <del>7</del> 56'05	
max. Earth dist.	4991 Oct 25 04:17	4° <del>M</del> 22'16	19.37291 AU	opposition	4999 May 29 00:51	9° <del>7</del> 54'23	0°19'02
				min. Earth dist.	4999 May 29 14:06	9° <del>7</del> 52'58	17.47766 AU
conjunction	4991 Oct 26 01:11	4° <del>M</del> 25'32	0°39'21	direct	4999 Aug 13 18:58	7° <del>7</del> 48'57	
minimum elong	4991 Oct 26 01:11	4° <del>M</del> 25'32	0°39'21				
retrograde	4992 Feb 11 08:00	8° <del>M</del> 48'54		conjunction	4999 Dec 03 14:53	12° <del>7</del> 16'49	0°15'16
opposition	4992 Apr 24 22:37	6° <del>M</del> 46'28	0°42'40	minimum elong	4999 Dec 03 14:53	12° <del>7</del> 16'49	0°15'16
min. Earth dist.	4992 Apr 25 16:39	6° <del>M</del> 44'30	17.37263 AU	behind sun begin	4999 Dec 03 12:47	12° <del>7</del> 16'30	
direct	4992 Jul 09 23:18	4° <del>M</del> 40'37		behind sun end	4999 Dec 03 17:00	12° <del>7</del> 17'09	
max. Earth dist.	4992 Oct 29 08:16	9° <del>M</del> 07'50	19.37278 AU	max. Earth dist.	4999 Dec 03 00:49	12° <del>7</del> 14'38	19.49371 AU
				retrograde	5000 Mar 20 22:26	16° <del>7</del> 36'24	
conjunction	4992 Oct 30 04:28	9° <del>M</del> 10'59	0°37'05	opposition	5000 Jun 03 01:03	14° <del>7</del> 34'50	0°14'59
minimum elong	4992 Oct 30 04:28	9° <del>M</del> 10'59	0°37'06	min. Earth dist.	5000 Jun 03 13:48	14° <del>7</del> 33'28	17.51121 AU
retrograde	4993 Feb 15 09:01	13° <del>M</del> 34'08		direct	5000 Aug 18 21:12	12° <del>7</del> 29'35	
opposition	4993 Apr 29 22:41	11° <del>M</del> 31'50	0°40'00				
min. Earth dist.	4993 Apr 30 15:43	11° <del>M</del> 29'59	17.37462 AU	conjunction	5000 Dec 08 13:23	16° <del>7</del> 56'36	0°11'37
direct	4993 Jul 15 02:55	9° <del>M</del> 26'01		minimum elong	5000 Dec 08 13:23	16° <del>7</del> 56'36	0°11'38
max. Earth dist.	4993 Nov 03 11:28	13° <del>M</del> 53'17	19.37693 AU	behind sun begin	5000 Dec 08 08:38	16° <del>7</del> 55'53	
				behind sun end	5000 Dec 08 18:08	16° <del>7</del> 57'19	
conjunction	4993 Nov 04 07:32	13° <del>M</del> 56'25	0°34'34	max. Earth dist.	5000 Dec 07 23:50	16° <del>7</del> 54'30	19.52993 AU
minimum elong	4993 Nov 04 07:32	13° <del>M</del> 56'25	0°34'35	retrograde	5001 Mar 25 19:18	21° <del>7</del> 15'30	
	4993 Nov 21 08:11	15° <del>M</del>		opposition	5001 Jun 08 00:51	19° <del>7</del> 14'03	0°10'52
retrograde	4994 Feb 20 07:32	18° <del>M</del> 19'16		min. Earth dist.	5001 Jun 08 11:23	19° <del>7</del> 12'56	17.55001 AU
opposition	4994 May 04 23:00	16° <del>M</del> 17'06	0°37'03	direct	5001 Aug 23 23:36	17° <del>7</del> 09'01	
min. Earth dist.	4994 May 05 16:42	16° <del>M</del> 15'10	17.38100 AU				
	4994 Jun 05 20:34	15° <del>R</del> <del>M</del>		conjunction	5001 Dec 13 11:26	21° <del>7</del> 35'09	0°07'54
direct	4994 Jul 20 04:30	14° <del>M</del> 11'17		minimum elong	5001 Dec 13 11:26	21° <del>7</del> 35'09	0°07'54
	4994 Sep 01 13:59	15° <del>M</del>		behind sun begin	5001 Dec 13 05:28	21° <del>7</del> 34'14	
				behind sun end	5001 Dec 13 17:24	21° <del>7</del> 36'03	
conjunction	4994 Nov 09 10:14	18° <del>M</del> 41'36	0°31'48	max. Earth dist.	5001 Dec 13 00:38	21° <del>7</del> 33'28	19.57128 AU
minimum elong	4994 Nov 09 10:14	18° <del>M</del> 41'36	0°31'48	retrograde	5002 Mar 30 15:14	25° <del>7</del> 53'17	
max. Earth dist.	4994 Nov 08 14:30	18° <del>M</del> 38'31	19.38548 AU	opposition	5002 Jun 13 00:21	23° <del>7</del> 52'03	0°06'41
retrograde	4995 Feb 25 08:16	23° <del>M</del> 04'05		min. Earth dist.	5002 Jun 13 10:01	23° <del>7</del> 51'01	17.59370 AU
opposition	4995 May 09 23:22	21° <del>M</del> 02'01	0°33'51	direct	5002 Aug 29 01:00	21° <del>7</del> 47'17	
min. Earth dist.	4995 May 10 15:44	21° <del>M</del> 00'14	17.39151 AU				
direct	4995 Jul 25 08:22	18° <del>M</del> 56'15		conjunction	5002 Dec 18 08:33	26° <del>7</del> 12'26	0°04'09
				minimum elong	5002 Dec 18 08:32	26° <del>7</del> 12'26	0°04'10
conjunction	4995 Nov 14 12:31	23° <del>M</del> 26'21	0°28'50	behind sun begin	5002 Dec 18 02:00	26° <del>7</del> 11'26	
minimum elong	4995 Nov 14 12:31	23° <del>M</del> 26'21	0°28'51	behind sun end	5002 Dec 18 15:04	26° <del>7</del> 13'25	
max. Earth dist.	4995 Nov 13 17:39	23° <del>M</del> 23'23	19.39808 AU	max. Earth dist.	5002 Dec 17 22:13	26° <del>7</del> 10'50	19.61734 AU
retrograde	4996 Mar 01 06:21	27° <del>M</del> 48'22			5003 Mar 02 10:59	0° <del>Ω</del>	
opposition	4996 May 13 23:56	25° <del>M</del> 46'24	0°30'25	retrograde	5003 Apr 04 11:13	0° <del>Ω</del> 29'49	
min. Earth dist.	4996 May 14 16:47	25° <del>M</del> 44'35	17.40626 AU		5003 May 08 09:05	30° <del>R</del> <del>Δ</del>	
direct	4996 Jul 29 10:10	23° <del>M</del> 40'41		opposition	5003 Jun 17 23:36	28° <del>7</del> 28'47	0°02'29
				min. Earth dist.	5003 Jun 18 07:22	28° <del>7</del> 27'58	17.64187 AU
conjunction	4996 Nov 18 14:08	28° <del>M</del> 10'25	0°25'40	direct	5003 Sep 03 01:49	26° <del>7</del> 24'20	
minimum elong	4996 Nov 18 14:08	28° <del>M</del> 10'25	0°25'40		5003 Dec 10 03:51	0° <del>Ω</del>	
max. Earth dist.	4996 Nov 17 19:33	28° <del>M</del> 07'30	19.41511 AU				
	4996 Dec 18 12:31	0° <del>Δ</del>		conjunction	5003 Dec 23 04:57	0° <del>Ω</del> 48'26	0°00'20
retrograde	4997 Mar 06 06:10	2° <del>Δ</del> 31'55		minimum elong	5003 Dec 23 04:56	0° <del>Ω</del> 48'25	0°00'21
opposition	4997 May 19 00:21	0° <del>Δ</del> 30'03	0°26'47	behind sun begin	5003 Dec 22 22:20	0° <del>Ω</del> 47'26	
min. Earth dist.	4997 May 19 15:27	0° <del>Δ</del> 28'25	17.42543 AU	behind sun end	5003 Dec 23 11:32	0° <del>Ω</del> 49'25	
	4997 May 30 17:44	30° <del>R</del> <del>M</del>		max. Earth dist.	5003 Dec 22 21:21	0° <del>Ω</del> 47'16	19.66745 AU
direct	4997 Aug 03 13:48	28° <del>M</del> 24'24		desc. node	5004 Jan 23 08:37	2° <del>Ω</del> 41'02	
	4997 Oct 04 12:34	0° <del>Δ</del>		retrograde	5004 Apr 08 06:38	5° <del>Ω</del> 05'02	
				opposition	5004 Jun 21 22:41	3° <del>Ω</del> 04'14	0°-1'-41
conjunction	4997 Nov 23 15:04	2° <del>Δ</del> 53'37	0°22'20	min. Earth dist.	5004 Jun 22 05:19	3° <del>Ω</del> 03'32	17.69362 AU
minimum elong	4997 Nov 23 15:04	2° <del>Δ</del> 53'37	0°22'20	direct	5004 Sep 07 01:52	1° <del>Ω</del> 00'08	
max. Earth dist.	4997 Nov 22 22:16	2° <del>Δ</del> 51'00	19.43654 AU				
retrograde	4998 Mar 11 03:30	7° <del>Δ</del> 14'33		conjunction	5004 Dec 27 00:27	5° <del>Ω</del> 23'05	0°-3'-29
opposition	4998 May 24 00:48	5° <del>Δ</del> 12'46	0°22'59	minimum elong	5004 Dec 27 00:27	5° <del>Ω</del> 23'05	0°03'30
min. Earth dist.	4998 May 24 16:02	5° <del>Δ</del> 11'07	17.44912 AU	behind sun begin	5004 Dec 26 17:52	5° <del>Ω</del> 22'05	
direct	4998 Aug 08 15:38	3° <del>Δ</del> 07'12		behind sun end	5004 Dec 27 07:01	5° <del>Ω</del> 24'04	
				max. Earth dist.	5004 Dec 26 17:24	5° <del>Ω</del> 22'01	19.72084 AU

retrograde	5005 Apr 13 02:11	9°♄38'53		min. Earth dist.	5012 Jul 28 18:06	8°♄50'38	18.16427 AU
opposition	5005 Jun 26 21:20	7°♄38'18	0°-5'-51	direct	5012 Oct 14 05:42	6°♄48'38	
min. Earth dist.	5005 Jun 27 02:27	7°♄37'45	17.74848 AU				
direct	5005 Sep 12 01:00	5°♄34'32		conjunction	5013 Jan 31 07:08	11°♄00'44	0°-30'-13
				minimum elong	5013 Jan 31 07:08	11°♄00'44	0°30'12
conjunction	5005 Dec 31 19:15	9°♄56'17	0°-7'-11	max. Earth dist.	5013 Jan 31 12:05	11°♄01'29	20.19479 AU
minimum elong	5005 Dec 31 19:16	9°♄56'17	0°07'11		5013 Apr 29 10:31	15°♄	
behind sun begin	5005 Dec 31 13:10	9°♄55'22		retrograde	5013 May 18 15:04	15°♄09'40	
behind sun end	5006 Jan 01 01:21	9°♄57'12			5013 Jun 07 02:43	15°♄	
max. Earth dist.	5005 Dec 31 14:39	9°♄55'36	19.77687 AU	opposition	5013 Aug 02 17:03	13°♄10'05	0°-35'00
retrograde	5006 Apr 17 21:06	14°♄11'16		min. Earth dist.	5013 Aug 02 11:47	13°♄10'38	18.22535 AU
opposition	5006 Jul 01 19:38	12°♄10'53	0°-9'-56	direct	5013 Oct 18 22:35	11°♄08'52	
min. Earth dist.	5006 Jul 01 23:24	12°♄10'30	17.80540 AU		5014 Jan 30 09:31	15°♄	
direct	5006 Sep 16 23:43	10°♄07'29					
				conjunction	5014 Feb 04 19:06	15°♄19'34	0°-32'-51
conjunction	5007 Jan 05 13:13	14°♄27'58	0°-10'-49	minimum elong	5014 Feb 04 19:06	15°♄19'34	0°32'52
minimum elong	5007 Jan 05 13:13	14°♄27'58	0°10'50	max. Earth dist.	5014 Feb 05 01:44	15°♄20'34	20.25613 AU
behind sun begin	5007 Jan 05 08:09	14°♄27'12		retrograde	5014 May 23 06:05	19°♄27'42	
behind sun end	5007 Jan 05 18:16	14°♄28'44		opposition	5014 Aug 07 10:38	17°♄28'13	0°-37'-49
max. Earth dist.	5007 Jan 05 09:07	14°♄27'21	19.83463 AU	min. Earth dist.	5014 Aug 07 02:48	17°♄29'01	18.28687 AU
retrograde	5007 Apr 22 15:34	18°♄42'06		direct	5014 Oct 23 17:15	15°♄27'20	
opposition	5007 Jul 06 17:29	16°♄41'54	0°-13'-57				
min. Earth dist.	5007 Jul 06 20:10	16°♄41'37	17.86394 AU	conjunction	5015 Feb 09 06:15	19°♄36'40	0°-35'-18
direct	5007 Sep 21 21:44	14°♄38'50		minimum elong	5015 Feb 09 06:14	19°♄36'40	0°35'19
				max. Earth dist.	5015 Feb 09 14:33	19°♄37'55	20.31778 AU
conjunction	5008 Jan 10 06:29	18°♄58'01	0°-14'-23	retrograde	5015 May 27 17:55	23°♄44'04	
minimum elong	5008 Jan 10 06:28	18°♄58'01	0°14'23	opposition	5015 Aug 12 03:47	21°♄44'42	0°-40'-24
behind sun begin	5008 Jan 10 03:21	18°♄57'32		min. Earth dist.	5015 Aug 11 19:22	21°♄45'34	18.34876 AU
behind sun end	5008 Jan 10 09:35	18°♄58'29		direct	5015 Oct 28 08:11	19°♄44'11	
max. Earth dist.	5008 Jan 10 04:30	18°♄57'43	19.89372 AU				
retrograde	5008 Apr 26 09:44	23°♄11'16		conjunction	5016 Feb 13 16:44	23°♄52'12	0°-37'-32
opposition	5008 Jul 10 14:57	21°♄11'14	0°-17'-52	minimum elong	5016 Feb 13 16:44	23°♄52'12	0°37'33
min. Earth dist.	5008 Jul 10 15:55	21°♄11'08	17.92336 AU	max. Earth dist.	5016 Feb 14 02:29	23°♄53'39	20.37973 AU
direct	5008 Sep 25 20:02	19°♄08'31		retrograde	5016 May 31 07:59	27°♄58'53	
				opposition	5016 Aug 15 20:10	25°♄59'40	0°-42'-45
conjunction	5009 Jan 13 22:39	23°♄26'19	0°-17'-50	min. Earth dist.	5016 Aug 15 09:12	26°♄00'46	18.41056 AU
minimum elong	5009 Jan 13 22:40	23°♄26'19	0°17'50	direct	5016 Nov 01 01:01	23°♄59'32	
max. Earth dist.	5009 Jan 13 21:25	23°♄26'08	19.95344 AU				
retrograde	5009 May 01 02:29	27°♄38'43		conjunction	5017 Feb 17 02:32	28°♄06'15	0°-39'-33
opposition	5009 Jul 15 11:53	25°♄38'49	0°-21'-38	minimum elong	5017 Feb 17 02:32	28°♄06'15	0°39'35
min. Earth dist.	5009 Jul 15 12:05	25°♄38'47	17.98338 AU	max. Earth dist.	5017 Feb 17 13:57	28°♄07'58	20.44118 AU
direct	5009 Sep 30 16:40	23°♄36'24			5017 Mar 22 00:43	0°♄	
				retrograde	5017 Jun 04 19:05	2°♄12'18	
conjunction	5010 Jan 18 14:13	27°♄52'48	0°-21'-10	opposition	5017 Aug 20 12:06	0°♄13'13	0°-44'-51
minimum elong	5010 Jan 18 14:13	27°♄52'48	0°21'10	min. Earth dist.	5017 Aug 20 00:53	0°♄14'21	18.47164 AU
max. Earth dist.	5010 Jan 18 14:48	27°♄52'54	20.01357 AU		5017 Aug 25 22:49	30°♄	
	5010 Feb 23 19:52	0°♄		direct	5017 Nov 05 14:27	28°♄13'29	
retrograde	5010 May 05 19:32	2°♄04'19			5018 Jan 11 05:19	0°♄	
opposition	5010 Jul 20 07:58	0°♄04'31	0°-25'-16				
min. Earth dist.	5010 Jul 20 06:17	0°♄04'42	18.04346 AU	conjunction	5018 Feb 21 11:47	2°♄18'58	0°-41'-21
	5010 Jul 22 03:42	30°♄		minimum elong	5018 Feb 21 11:46	2°♄18'58	0°41'21
direct	5010 Oct 05 14:17	28°♄02'24		max. Earth dist.	5018 Feb 22 00:10	2°♄20'48	20.50166 AU
	5010 Dec 14 13:43	0°♄		retrograde	5018 Jun 09 08:02	6°♄24'23	
				opposition	5018 Aug 25 03:11	4°♄25'27	0°-46'-42
conjunction	5011 Jan 23 04:48	2°♄17'24	0°-24'-21	min. Earth dist.	5018 Aug 24 13:47	4°♄26'48	18.53131 AU
minimum elong	5011 Jan 23 04:48	2°♄17'24	0°24'21	direct	5018 Nov 10 05:15	2°♄26'06	
max. Earth dist.	5011 Jan 23 06:23	2°♄17'38	20.07371 AU				
retrograde	5011 May 10 10:07	6°♄28'02		conjunction	5019 Feb 25 20:33	6°♄30'23	0°-42'-55
opposition	5011 Jul 25 03:44	4°♄28'19	0°-28'-42	minimum elong	5019 Feb 25 20:33	6°♄30'23	0°42'57
min. Earth dist.	5011 Jul 25 01:26	4°♄28'33	18.10376 AU	max. Earth dist.	5019 Feb 26 10:27	6°♄32'27	20.56032 AU
direct	5011 Oct 10 09:23	2°♄26'30		retrograde	5019 Jun 13 18:35	10°♄35'15	
				opposition	5019 Aug 29 18:06	8°♄36'26	0°-48'-18
conjunction	5012 Jan 27 18:23	6°♄40'02	0°-27'-22	min. Earth dist.	5019 Aug 29 04:43	8°♄37'47	18.58896 AU
minimum elong	5012 Jan 27 18:23	6°♄40'02	0°27'23	direct	5019 Nov 14 17:24	6°♄37'28	
max. Earth dist.	5012 Jan 27 21:50	6°♄40'33	20.13412 AU				
retrograde	5012 May 14 02:13	10°♄49'48		conjunction	5020 Mar 01 04:40	10°♄40'34	0°-44'-15
opposition	5012 Jul 28 22:44	8°♄50'09	0°-31'-57	minimum elong	5020 Mar 01 04:40	10°♄40'34	0°44'16



max. Earth dist.	5020 Mar 01 19:11	10° <del>✕</del> 42'43	20.61673 AU	max. Earth dist.	5028 Apr 03 03:23	13° <del>Υ</del> 22'37	20.93576 AU
retrograde	5020 Jun 17 06:39	14° <del>✕</del> 44'54		retrograde	5028 Jul 20 10:59	17° <del>Υ</del> 21'08	
opposition	5020 Sep 02 08:18	12° <del>✕</del> 46'12	0°-49'-38	min. Earth dist.	5028 Oct 05 11:07	15° <del>Υ</del> 24'15	18.94868 AU
min. Earth dist.	5020 Sep 01 17:00	12° <del>✕</del> 47'45	18.64394 AU	opposition	5028 Oct 06 06:33	15° <del>Υ</del> 22'19	0°-50'-48
direct	5020 Nov 18 06:38	10° <del>✕</del> 47'34		direct	5028 Dec 21 12:44	13° <del>Υ</del> 25'13	
conjunction	5021 Mar 05 12:33	14° <del>✕</del> 49'34	0°-45'-22	conjunction	5029 Apr 06 13:20	17° <del>Υ</del> 20'18	0°-45'-33
minimum elong	5021 Mar 05 12:33	14° <del>✕</del> 49'34	0°45'22	minimum elong	5029 Apr 06 13:20	17° <del>Υ</del> 20'18	0°45'34
max. Earth dist.	5021 Mar 06 04:18	14° <del>✕</del> 51'54	20.66999 AU	max. Earth dist.	5029 Apr 07 09:45	17° <del>Υ</del> 23'15	20.96000 AU
retrograde	5021 Jun 21 16:28	18° <del>✕</del> 53'24		retrograde	5029 Jul 24 18:36	21° <del>Υ</del> 21'28	
opposition	5021 Sep 06 21:57	16° <del>✕</del> 54'47	0°-50'-43	opposition	5029 Oct 10 16:04	19° <del>Υ</del> 22'38	0°-49'-48
min. Earth dist.	5021 Sep 06 07:01	16° <del>✕</del> 56'17	18.69555 AU	min. Earth dist.	5029 Oct 09 21:01	19° <del>Υ</del> 24'32	18.97131 AU
direct	5021 Nov 22 17:20	14° <del>✕</del> 56'27		direct	5029 Dec 25 20:03	17° <del>Υ</del> 25'41	
conjunction	5022 Mar 09 19:58	18° <del>✕</del> 57'24	0°-46'-13	conjunction	5030 Apr 10 18:23	21° <del>Υ</del> 20'17	0°-44'-32
minimum elong	5022 Mar 09 19:58	18° <del>✕</del> 57'24	0°46'14	minimum elong	5030 Apr 10 18:23	21° <del>Υ</del> 20'17	0°44'32
max. Earth dist.	5022 Mar 10 11:47	18° <del>✕</del> 59'43	20.71972 AU	max. Earth dist.	5030 Apr 11 14:24	21° <del>Υ</del> 23'10	20.98106 AU
retrograde	5022 Jun 26 03:55	23° <del>✕</del> 00'44		retrograde	5030 Jul 29 04:14	25° <del>Υ</del> 21'24	
opposition	5022 Sep 11 11:03	21° <del>✕</del> 02'10	0°-51'-31	min. Earth dist.	5030 Oct 14 05:22	23° <del>Υ</del> 24'32	18.99063 AU
min. Earth dist.	5022 Sep 10 18:32	21° <del>✕</del> 03'49	18.74328 AU	opposition	5030 Oct 15 01:20	23° <del>Υ</del> 22'32	0°-48'-33
direct	5022 Nov 27 05:25	19° <del>✕</del> 04'06		direct	5030 Dec 30 02:49	21° <del>Υ</del> 25'44	
conjunction	5023 Mar 14 02:55	23° <del>✕</del> 04'01	0°-46'-51	conjunction	5031 Apr 14 23:24	25° <del>Υ</del> 19'56	0°-43'-18
minimum elong	5023 Mar 14 02:55	23° <del>✕</del> 04'01	0°46'51	minimum elong	5031 Apr 14 23:24	25° <del>Υ</del> 19'56	0°43'20
max. Earth dist.	5023 Mar 14 19:50	23° <del>✕</del> 06'29	20.76527 AU	max. Earth dist.	5031 Apr 15 20:25	25° <del>Υ</del> 22'57	20.99850 AU
retrograde	5023 Jun 30 12:44	27° <del>✕</del> 06'55		retrograde	5031 Aug 02 11:41	29° <del>Υ</del> 21'04	
opposition	5023 Sep 15 23:48	25° <del>✕</del> 08'21	0°-52'-4	opposition	5031 Oct 19 10:28	27° <del>Υ</del> 22'11	0°-47'-4
min. Earth dist.	5023 Sep 15 07:42	25° <del>✕</del> 09'58	18.78677 AU	min. Earth dist.	5031 Oct 18 15:00	27° <del>Υ</del> 24'08	19.00617 AU
direct	5023 Dec 01 15:02	23° <del>✕</del> 10'30		direct	5032 Jan 03 09:46	25° <del>Υ</del> 25'32	
conjunction	5024 Mar 17 09:29	27° <del>✕</del> 09'26	0°-47'-13	conjunction	5032 Apr 18 04:34	29° <del>Υ</del> 19'25	0°-41'-52
minimum elong	5024 Mar 17 09:29	27° <del>✕</del> 09'26	0°47'15	minimum elong	5032 Apr 18 04:34	29° <del>Υ</del> 19'25	0°41'53
max. Earth dist.	5024 Mar 18 02:20	27° <del>✕</del> 11'53	20.80675 AU	max. Earth dist.	5032 Apr 19 00:53	29° <del>Υ</del> 22'21	21.01218 AU
	5024 May 10 05:33	0° <del>Υ</del>			5032 Apr 29 23:36	0° <del>⊘</del>	
retrograde	5024 Jul 03 23:33	1° <del>Υ</del> 11'54		retrograde	5032 Aug 05 21:48	3° <del>⊘</del> 20'37	
	5024 Aug 30 12:02	30° <del>⊘</del>		opposition	5032 Oct 22 19:08	1° <del>⊘</del> 21'45	0°-45'-22
opposition	5024 Sep 19 11:44	29° <del>✕</del> 13'18	0°-52'-20	min. Earth dist.	5032 Oct 21 23:14	1° <del>⊘</del> 23'44	19.01777 AU
min. Earth dist.	5024 Sep 18 18:15	29° <del>✕</del> 15'03	18.82621 AU		5032 Nov 29 11:52	30° <del>⊘</del>	
direct	5024 Dec 05 02:11	27° <del>✕</del> 15'38		direct	5033 Jan 06 15:57	29° <del>Υ</del> 25'12	
	5025 Feb 28 07:10	0° <del>Υ</del>			5033 Feb 12 19:49	0° <del>⊘</del>	
conjunction	5025 Mar 21 15:39	1° <del>Υ</del> 13'38	0°-47'-22	conjunction	5033 Apr 22 09:58	3° <del>⊘</del> 18'53	0°-40'-13
minimum elong	5025 Mar 21 15:39	1° <del>Υ</del> 13'38	0°47'22	minimum elong	5033 Apr 22 09:58	3° <del>⊘</del> 18'53	0°40'16
max. Earth dist.	5025 Mar 22 09:42	1° <del>Υ</del> 16'16	20.84412 AU	max. Earth dist.	5033 Apr 23 06:53	3° <del>⊘</del> 21'53	21.02147 AU
retrograde	5025 Jul 08 07:42	5° <del>Υ</del> 15'43		retrograde	5033 Aug 10 05:20	7° <del>⊘</del> 20'13	
opposition	5025 Sep 23 23:14	3° <del>Υ</del> 17'04	0°-52'-21	min. Earth dist.	5033 Oct 26 08:43	5° <del>⊘</del> 23'14	19.02470 AU
min. Earth dist.	5025 Sep 23 06:09	3° <del>Υ</del> 18'47	18.86172 AU	opposition	5033 Oct 27 03:45	5° <del>⊘</del> 21'19	0°-43'-26
direct	5025 Dec 09 10:41	1° <del>Υ</del> 19'32		direct	5034 Jan 10 22:11	3° <del>⊘</del> 24'54	
conjunction	5026 Mar 25 21:22	5° <del>Υ</del> 16'40	0°-47'-15	conjunction	5034 Apr 26 15:26	7° <del>⊘</del> 18'26	0°-38'-23
minimum elong	5026 Mar 25 21:22	5° <del>Υ</del> 16'40	0°47'17	minimum elong	5034 Apr 26 15:26	7° <del>⊘</del> 18'26	0°38'25
max. Earth dist.	5026 Mar 26 15:25	5° <del>Υ</del> 19'18	20.87789 AU	max. Earth dist.	5034 Apr 27 11:12	7° <del>⊘</del> 21'16	21.02604 AU
retrograde	5026 Jul 12 17:30	9° <del>Υ</del> 18'26		retrograde	5034 Aug 14 15:43	11° <del>⊘</del> 19'57	
opposition	5026 Sep 28 10:03	7° <del>Υ</del> 19'43	0°-52'-5	opposition	5034 Oct 31 12:12	9° <del>⊘</del> 21'01	0°-41'-18
min. Earth dist.	5026 Sep 27 15:36	7° <del>Υ</del> 21'33	18.89383 AU	min. Earth dist.	5034 Oct 30 17:09	9° <del>⊘</del> 22'55	19.02673 AU
direct	5026 Dec 13 20:41	5° <del>Υ</del> 22'19		direct	5035 Jan 15 04:40	7° <del>⊘</del> 24'38	
conjunction	5027 Mar 30 02:55	9° <del>Υ</del> 18'41	0°-46'-55	conjunction	5035 Apr 30 21:18	11° <del>⊘</del> 18'07	0°-36'-22
minimum elong	5027 Mar 30 02:55	9° <del>Υ</del> 18'41	0°46'56	minimum elong	5035 Apr 30 21:18	11° <del>⊘</del> 18'07	0°36'24
max. Earth dist.	5027 Mar 30 22:17	9° <del>Υ</del> 21'30	20.90830 AU	max. Earth dist.	5035 May 01 17:20	11° <del>⊘</del> 21'00	21.02534 AU
retrograde	5027 Jul 17 01:32	13° <del>Υ</del> 20'11			5035 Jul 21 07:52	15° <del>⊘</del>	
opposition	5027 Oct 02 20:35	11° <del>Υ</del> 21'24	0°-51'-34	retrograde	5035 Aug 18 23:23	15° <del>⊘</del> 19'51	
min. Earth dist.	5027 Oct 02 02:23	11° <del>Υ</del> 23'14	18.92275 AU		5035 Sep 17 01:19	15° <del>⊘</del>	
direct	5027 Dec 18 04:29	9° <del>Υ</del> 24'10		opposition	5035 Nov 04 20:33	13° <del>⊘</del> 20'51	0°-38'-58
				min. Earth dist.	5035 Nov 04 02:33	13° <del>⊘</del> 22'40	19.02329 AU
conjunction	5028 Apr 02 08:05	13° <del>Υ</del> 19'50	0°-46'-20	direct	5036 Jan 19 10:27	11° <del>⊘</del> 24'29	
minimum elong	5028 Apr 02 08:05	13° <del>Υ</del> 19'50	0°46'22		5036 Apr 28 22:03	15° <del>⊘</del>	

conjunction	5036 May 04 03:19	15°♄17'59	0°-34'-10	direct	5044 Feb 20 13:24	13°♄32'33	
minimum elong	5036 May 04 03:19	15°♄17'59	0°34'12				
max. Earth dist.	5036 May 04 21:51	15°♄20'38	21.01927 AU	conjunction	5044 Jun 05 15:06	17°♄28'59	0°-11'-28
retrograde	5036 Aug 22 09:38	19°♄19'58		minimum elong	5044 Jun 05 15:06	17°♄28'59	0°11'29
min. Earth dist.	5036 Nov 07 11:07	17°♄22'38	19.01440 AU	behind sun begin	5044 Jun 05 10:19	17°♄28'19	
opposition	5036 Nov 08 04:46	17°♄20'51	0°-36'-26	behind sun end	5044 Jun 05 19:53	17°♄29'39	
direct	5037 Jan 22 17:22	15°♄24'26		max. Earth dist.	5044 Jun 06 03:54	17°♄30'49	20.81537 AU
				retrograde	5044 Sep 24 12:24	21°♄34'31	
conjunction	5037 May 08 09:41	19°♄18'01	0°-31'-48	opposition	5044 Dec 10 20:14	19°♄34'11	0°-10'-48
minimum elong	5037 May 08 09:41	19°♄18'01	0°31'49	min. Earth dist.	5044 Dec 10 08:32	19°♄35'23	18.79605 AU
max. Earth dist.	5037 May 09 04:19	19°♄20'41	21.00761 AU	direct	5045 Feb 23 19:48	17°♄36'31	
retrograde	5037 Aug 26 17:15	23°♄20'16					
opposition	5037 Nov 12 12:43	21°♄21'01	0°-33'-44	conjunction	5045 Jun 10 00:57	21°♄33'44	0°-8'-11
min. Earth dist.	5037 Nov 11 20:10	21°♄22'41	19.00010 AU	minimum elong	5045 Jun 10 00:57	21°♄33'44	0°08'13
direct	5038 Jan 26 23:16	19°♄24'30		behind sun begin	5045 Jun 09 19:03	21°♄32'54	
				behind sun end	5045 Jun 10 06:51	21°♄34'33	
conjunction	5038 May 12 16:08	23°♄18'13	0°-29'-16	max. Earth dist.	5045 Jun 10 13:45	21°♄35'34	20.77595 AU
minimum elong	5038 May 12 16:08	23°♄18'13	0°29'18	retrograde	5045 Sep 28 23:14	25°♄39'55	
max. Earth dist.	5038 May 13 09:16	23°♄20'40	20.99104 AU	opposition	5045 Dec 15 04:41	23°♄39'30	0°-7'-7
retrograde	5038 Aug 31 02:55	27°♄20'47		min. Earth dist.	5045 Dec 14 17:54	23°♄40'37	18.75514 AU
opposition	5038 Nov 16 20:40	25°♄21'22	0°-30'-51	direct	5046 Feb 28 02:51	21°♄41'40	
min. Earth dist.	5038 Nov 16 04:30	25°♄23'00	18.98124 AU				
direct	5039 Jan 31 06:00	23°♄24'43		conjunction	5046 Jun 14 11:24	25°♄39'43	0°-4'-51
				minimum elong	5046 Jun 14 11:24	25°♄39'43	0°04'53
conjunction	5039 May 16 22:51	27°♄18'40	0°-26'-35	behind sun begin	5046 Jun 14 04:53	25°♄38'48	
minimum elong	5039 May 16 22:52	27°♄18'40	0°26'36	behind sun end	5046 Jun 14 17:54	25°♄40'38	
max. Earth dist.	5039 May 17 16:19	27°♄21'10	20.97001 AU	max. Earth dist.	5046 Jun 14 22:02	25°♄41'14	20.73372 AU
	5039 Jul 07 02:34	0°♄		retrograde	5046 Oct 03 11:37	29°♄46'38	
retrograde	5039 Sep 04 11:17	1°♄21'36		opposition	5046 Dec 19 13:33	27°♄46'06	0°-3'-24
	5039 Nov 05 06:00	30°♄		min. Earth dist.	5046 Dec 19 04:06	27°♄47'05	18.71140 AU
opposition	5039 Nov 21 04:32	29°♄22'00	0°-27'-49	direct	5047 Mar 04 09:48	25°♄48'04	
min. Earth dist.	5039 Nov 20 13:15	29°♄23'33	18.95819 AU				
direct	5040 Feb 04 12:12	27°♄25'12		conjunction	5047 Jun 18 22:44	29°♄47'03	0°-1'-27
	5040 Apr 26 18:21	0°♄		minimum elong	5047 Jun 18 22:45	29°♄47'03	0°01'29
conjunction	5040 May 20 05:58	1°♄19'27	0°-23'-47	behind sun begin	5047 Jun 18 16:04	29°♄46'07	
minimum elong	5040 May 20 05:58	1°♄19'27	0°23'49	behind sun end	5047 Jun 19 05:27	29°♄48'00	
max. Earth dist.	5040 May 20 21:53	1°♄21'44	20.94525 AU	max. Earth dist.	5047 Jun 19 09:07	29°♄48'32	20.68829 AU
retrograde	5040 Sep 07 20:28	5°♄22'48			5047 Jun 22 16:07	0°♄	
opposition	5040 Nov 24 12:11	3°♄23'02	0°-24'-38	retrograde	5047 Oct 07 23:59	3°♄54'42	
min. Earth dist.	5040 Nov 23 21:26	3°♄24'31	18.93171 AU	asc. node	5047 Nov 19 06:55	3°♄12'48	
direct	5041 Feb 07 18:23	1°♄26'03		opposition	5047 Dec 23 22:43	1°♄54'05	0°00'21
				min. Earth dist.	5047 Dec 23 14:26	1°♄54'57	18.66417 AU
conjunction	5041 May 24 13:36	5°♄20'44	0°-20'-51		5048 Feb 24 01:34	30°♄	
minimum elong	5041 May 24 13:36	5°♄20'44	0°20'52	direct	5048 Mar 07 17:59	29°♄55'50	
max. Earth dist.	5041 May 25 05:43	5°♄23'03	20.91706 AU		5048 Mar 20 07:15	0°♄	
retrograde	5041 Sep 12 05:42	9°♄24'32		conjunction	5048 Jun 22 10:55	3°♄55'48	0°02'04
opposition	5041 Nov 28 20:00	7°♄24'36	0°-21'-20	minimum elong	5048 Jun 22 10:55	3°♄55'48	0°02'04
min. Earth dist.	5041 Nov 28 06:00	7°♄26'02	18.90193 AU	behind sun begin	5048 Jun 22 04:13	3°♄54'51	
direct	5042 Feb 12 00:45	5°♄27'28		behind sun end	5048 Jun 22 17:36	3°♄56'44	
				max. Earth dist.	5048 Jun 22 18:32	3°♄56'53	20.63935 AU
conjunction	5042 May 28 21:23	9°♄22'38	0°-17'-48	retrograde	5048 Oct 11 13:06	8°♄04'13	
minimum elong	5042 May 28 21:24	9°♄22'38	0°17'50	opposition	5048 Dec 27 08:13	6°♄03'28	0°04'09
max. Earth dist.	5042 May 29 11:54	9°♄24'43	20.88592 AU	min. Earth dist.	5048 Dec 27 01:44	6°♄04'08	18.61342 AU
retrograde	5042 Sep 16 15:21	13°♄26'59		direct	5049 Mar 12 01:51	4°♄04'55	
opposition	5042 Dec 03 03:58	11°♄26'53	0°-17'-55				
min. Earth dist.	5042 Dec 02 14:32	11°♄28'15	18.86938 AU	conjunction	5049 Jun 26 23:58	8°♄05'57	0°05'30
direct	5043 Feb 16 06:52	9°♄29'34		minimum elong	5049 Jun 26 23:58	8°♄05'57	0°05'29
				behind sun begin	5049 Jun 26 17:31	8°♄05'02	
conjunction	5043 Jun 02 06:01	13°♄25'20	0°-14'-40	behind sun end	5049 Jun 27 06:25	8°♄06'51	
minimum elong	5043 Jun 02 06:00	13°♄25'20	0°14'42	max. Earth dist.	5049 Jun 27 06:59	8°♄06'56	20.58672 AU
behind sun begin	5043 Jun 02 03:19	13°♄24'58		retrograde	5049 Oct 16 02:41	12°♄15'07	
behind sun end	5043 Jun 02 08:42	13°♄25'43		opposition	5049 Dec 31 18:09	10°♄14'13	0°07'56
max. Earth dist.	5043 Jun 02 20:42	13°♄27'26	20.85195 AU	min. Earth dist.	5049 Dec 31 12:47	10°♄14'47	18.55897 AU
retrograde	5043 Sep 21 01:18	17°♄30'14		direct	5050 Mar 16 11:29	8°♄15'23	
opposition	5043 Dec 07 11:58	15°♄30'02	0°-14'-24				
min. Earth dist.	5043 Dec 06 23:19	15°♄31'19	18.83402 AU	conjunction	5050 Jul 01 13:25	12°♄17'28	0°08'54

minimum elong	5050 Jul 01 13:25	12°☿17'28	0°08'53			5057 Sep 18 13:54	15°♄	
behind sun begin	5050 Jul 01 07:40	12°☿16'39		retrograde		5057 Nov 20 09:14	16°♄35'52	
behind sun end	5050 Jul 01 19:10	12°☿18'17				5058 Jan 24 08:12	15°♄	
max. Earth dist.	5050 Jul 01 17:39	12°☿18'04	20.53074 AU	opposition		5058 Feb 03 16:46	14°♄33'38	0°35'47
retrograde	5050 Oct 20 16:22	16°☿27'27		min. Earth dist.		5058 Feb 03 21:11	14°♄33'10	18.06823 AU
opposition	5051 Jan 05 04:32	14°☿26'21	0°11'43	direct		5058 Apr 19 07:49	12°♄31'56	
min. Earth dist.	5051 Jan 05 01:04	14°☿26'43	18.50150 AU			5058 Jul 07 08:07	15°♄	
direct	5051 Mar 20 20:26	12°☿27'10						
				conjunction		5058 Aug 06 07:00	16°♄44'28	0°33'31
conjunction	5051 Jul 06 04:01	16°☿30'24	0°12'16	minimum elong		5058 Aug 06 07:00	16°♄44'28	0°33'31
minimum elong	5051 Jul 06 04:00	16°☿30'24	0°12'16	max. Earth dist.		5058 Aug 05 23:43	16°♄43'23	20.03831 AU
behind sun begin	5051 Jul 05 23:36	16°☿29'46		retrograde		5058 Nov 25 03:00	21°♄01'07	
behind sun end	5051 Jul 06 08:25	16°☿31'02		opposition		5059 Feb 08 07:13	18°♄58'49	0°38'37
max. Earth dist.	5051 Jul 06 07:44	16°☿30'56	20.47192 AU	min. Earth dist.		5059 Feb 08 13:43	18°♄58'07	18.00862 AU
retrograde	5051 Oct 25 07:03	20°☿41'09		direct		5059 Apr 23 22:05	16°♄56'48	
opposition	5052 Jan 09 15:04	18°☿39'52	0°15'27					
min. Earth dist.	5052 Jan 09 12:34	18°☿40'08	18.44148 AU	conjunction		5059 Aug 11 04:09	21°♄10'48	0°35'59
direct	5052 Mar 24 07:14	16°☿40'19		minimum elong		5059 Aug 11 04:09	21°♄10'48	0°35'58
				max. Earth dist.		5059 Aug 10 20:15	21°♄09'38	19.97933 AU
conjunction	5052 Jul 09 19:10	20°☿44'45	0°15'36	retrograde		5059 Nov 29 22:22	25°♄28'17	
minimum elong	5052 Jul 09 19:10	20°☿44'45	0°15'35	opposition		5060 Feb 12 22:03	23°♄25'56	0°41'16
behind sun begin	5052 Jul 09 17:56	20°☿44'34		min. Earth dist.		5060 Feb 13 04:56	23°♄25'12	17.95017 AU
behind sun end	5052 Jul 09 20:23	20°☿44'55		direct		5060 Apr 27 14:32	21°♄23'39	
max. Earth dist.	5052 Jul 09 20:06	20°☿44'53	20.41100 AU					
retrograde	5052 Oct 28 21:36	24°☿56'19		conjunction		5060 Aug 15 02:07	25°♄39'07	0°38'15
opposition	5053 Jan 13 02:10	22°☿54'50	0°19'07	minimum elong		5060 Aug 15 02:07	25°♄39'07	0°38'14
min. Earth dist.	5053 Jan 13 01:37	22°☿54'53	18.37982 AU	max. Earth dist.		5060 Aug 14 16:00	25°♄37'36	19.92134 AU
direct	5053 Mar 28 17:20	20°☿54'53		retrograde		5060 Dec 03 17:03	29°♄57'25	
				opposition		5061 Feb 16 13:53	27°♄55'02	0°43'41
conjunction	5053 Jul 14 11:07	25°☿00'33	0°18'52	min. Earth dist.		5061 Feb 16 23:06	27°♄54'02	17.89277 AU
minimum elong	5053 Jul 14 11:07	25°☿00'33	0°18'52	direct		5061 May 02 06:32	25°♄52'26	
max. Earth dist.	5053 Jul 14 11:45	25°☿00'39	20.34868 AU			5061 Aug 17 11:00	0°♄	
retrograde	5053 Nov 02 13:24	29°☿12'57						
opposition	5054 Jan 17 13:36	27°☿11'16	0°22'42	conjunction		5061 Aug 20 00:49	0°♄09'21	0°40'18
min. Earth dist.	5054 Jan 17 13:39	27°☿11'16	18.31705 AU	minimum elong		5061 Aug 20 00:49	0°♄09'21	0°40'17
direct	5054 Apr 02 04:51	25°☿10'57		max. Earth dist.		5061 Aug 19 13:40	0°♄07'40	19.86435 AU
				retrograde		5061 Dec 08 13:48	4°♄28'24	
conjunction	5054 Jul 19 03:46	29°☿17'55	0°22'03	opposition		5062 Feb 21 06:16	2°♄25'58	0°45'51
minimum elong	5054 Jul 19 03:46	29°☿17'55	0°22'02	min. Earth dist.		5062 Feb 21 15:49	2°♄24'56	17.83622 AU
max. Earth dist.	5054 Jul 19 01:49	29°☿17'38	20.28571 AU	direct		5062 May 07 01:21	0°♄23'03	
	5054 Jul 31 02:07	0°♄		max. Earth dist.		5062 Aug 24 11:19	4°♄39'23	19.80817 AU
retrograde	5054 Nov 07 05:16	3°♄31'09						
opposition	5055 Jan 22 01:35	1°♄29'18	0°26'11	conjunction		5062 Aug 25 00:26	4°♄41'22	0°42'07
min. Earth dist.	5055 Jan 22 03:32	1°♄29'05	18.25409 AU	minimum elong		5062 Aug 25 00:25	4°♄41'22	0°42'06
	5055 Mar 02 14:30	30°♄		retrograde		5062 Dec 13 09:19	9°♄01'08	
direct	5055 Apr 06 16:14	29°☿28'35		opposition		5063 Feb 25 23:24	6°♄58'37	0°47'45
	5055 May 11 07:26	0°♄		min. Earth dist.		5063 Feb 26 11:17	6°♄57'20	17.78066 AU
				direct		5063 May 11 18:48	4°♄55'22	
conjunction	5055 Jul 23 21:24	3°♄36'54	0°25'08	max. Earth dist.		5063 Aug 29 10:12	9°♄12'49	19.75323 AU
minimum elong	5055 Jul 23 21:24	3°♄36'54	0°25'07					
max. Earth dist.	5055 Jul 23 19:09	3°♄36'34	20.22274 AU	conjunction		5063 Aug 30 00:48	9°♄15'02	0°43'41
retrograde	5055 Nov 11 22:11	7°♄50'58		minimum elong		5063 Aug 30 00:48	9°♄15'02	0°43'41
opposition	5056 Jan 26 14:02	5°♄48'58	0°29'32	retrograde		5063 Dec 18 07:31	13°♄35'26	
min. Earth dist.	5056 Jan 26 16:22	5°♄48'43	18.19125 AU	opposition		5064 Mar 01 17:05	11°♄32'50	0°49'21
direct	5056 Apr 10 04:46	3°♄47'55		min. Earth dist.		5064 Mar 02 05:16	11°♄31'31	17.72641 AU
				direct		5064 May 15 15:32	9°♄29'14	
conjunction	5056 Jul 27 15:45	7°♄57'35	0°28'04	max. Earth dist.		5064 Sep 02 09:47	13°♄47'47	19.69972 AU
minimum elong	5056 Jul 27 15:45	7°♄57'35	0°28'04					
max. Earth dist.	5056 Jul 27 11:01	7°♄56'53	20.16018 AU	conjunction		5064 Sep 03 01:42	13°♄50'12	0°44'59
retrograde	5056 Nov 15 15:10	12°♄12'31		minimum elong		5064 Sep 03 01:42	13°♄50'12	0°44'58
opposition	5057 Jan 30 03:07	10°♄10'23	0°32'45	retrograde		5064 Dec 22 03:59	18°♄11'12	
min. Earth dist.	5057 Jan 30 07:21	10°♄09'56	18.12920 AU	opposition		5065 Mar 06 11:28	16°♄08'31	0°50'39
direct	5057 Apr 14 17:31	8°♄08'59		min. Earth dist.		5065 Mar 07 01:42	16°♄06'58	17.67400 AU
				direct		5065 May 20 10:29	14°♄04'34	
conjunction	5057 Aug 01 11:03	12°♄20'05	0°30'52	max. Earth dist.		5065 Sep 07 09:42	18°♄24'06	19.64859 AU
minimum elong	5057 Aug 01 11:03	12°♄20'05	0°30'51					
max. Earth dist.	5057 Aug 01 06:00	12°♄19'20	20.09864 AU	conjunction		5065 Sep 08 03:07	18°♄26'46	0°45'59

minimum elong	5065 Sep 08 03:07	18° <del>17</del> 26'46	0°46'00	minimum elong	5073 Oct 17 02:49	25° <del>15</del> 57'57	0°43'05
retrograde	5065 Dec 27 02:49	22° <del>17</del> 48'17			5074 Jan 05 22:26	0° <del>16</del>	
opposition	5066 Mar 11 06:17	20° <del>17</del> 45'30	0°51'38	retrograde	5074 Feb 02 18:27	0° <del>16</del> 21'36	
min. Earth dist.	5066 Mar 11 20:37	20° <del>17</del> 43'56	17.62426 AU		5074 Mar 03 00:24	30° <del>18</del> <del>R</del>	
direct	5066 May 25 08:10	18° <del>17</del> 41'12		opposition	5074 Apr 17 08:46	28° <del>15</del> 18'58	0°47'05
max. Earth dist.	5066 Sep 12 11:08	23° <del>17</del> 01'50	19.60027 AU	min. Earth dist.	5074 Apr 18 02:31	28° <del>15</del> 17'02	17.38446 AU
				direct	5074 Jul 02 03:17	26° <del>15</del> 13'15	
conjunction	5066 Sep 13 05:03	23° <del>17</del> 04'35	0°46'43		5074 Oct 10 17:20	0° <del>16</del>	
minimum elong	5066 Sep 13 05:03	23° <del>17</del> 04'35	0°46'43	max. Earth dist.	5074 Oct 21 10:27	0° <del>16</del> 40'03	19.37985 AU
retrograde	5067 Jan 01 00:27	27° <del>17</del> 26'34					
opposition	5067 Mar 16 01:50	25° <del>17</del> 23'42	0°52'17	conjunction	5074 Oct 22 06:38	0° <del>16</del> 43'12	0°41'19
min. Earth dist.	5067 Mar 16 17:49	25° <del>17</del> 21'57	17.57765 AU	minimum elong	5074 Oct 22 06:38	0° <del>16</del> 43'12	0°41'19
direct	5067 May 30 04:45	23° <del>17</del> 19'04		retrograde	5075 Feb 07 18:52	5° <del>16</del> 06'48	
max. Earth dist.	5067 Sep 17 11:54	27° <del>17</del> 40'33	19.55553 AU	opposition	5075 Apr 22 08:17	3° <del>16</del> 04'19	0°44'59
				min. Earth dist.	5075 Apr 23 01:44	3° <del>16</del> 02'25	17.37699 AU
conjunction	5067 Sep 18 07:22	27° <del>17</del> 43'33	0°47'07	direct	5075 Jul 07 06:25	0° <del>16</del> 58'36	
minimum elong	5067 Sep 18 07:22	27° <del>17</del> 43'33	0°47'07				
	5067 Oct 26 23:38	0° <del>15</del>		conjunction	5075 Oct 27 10:15	5° <del>16</del> 28'51	0°39'17
retrograde	5068 Jan 05 23:27	2° <del>15</del> 05'57		minimum elong	5075 Oct 27 10:15	5° <del>16</del> 28'51	0°39'18
opposition	5068 Mar 19 21:42	0° <del>15</del> 03'00	0°52'35	max. Earth dist.	5075 Oct 26 13:13	5° <del>16</del> 25'34	19.37455 AU
min. Earth dist.	5068 Mar 20 13:40	0° <del>15</del> 01'15	17.53495 AU	retrograde	5076 Feb 12 17:40	9° <del>16</del> 52'21	
	5068 Mar 21 01:11	30° <del>18</del>		opposition	5076 Apr 26 08:11	7° <del>16</del> 49'59	0°42'34
direct	5068 Jun 03 03:28	27° <del>17</del> 58'03		min. Earth dist.	5076 Apr 27 02:09	7° <del>16</del> 48'02	17.37394 AU
	5068 Aug 12 13:23	0° <del>15</del>		direct	5076 Jul 11 08:28	5° <del>16</del> 44'14	
conjunction	5068 Sep 22 10:10	2° <del>15</del> 23'36	0°47'14	conjunction	5076 Oct 31 13:44	10° <del>16</del> 14'42	0°36'59
minimum elong	5068 Sep 22 10:09	2° <del>15</del> 23'36	0°47'14	minimum elong	5076 Oct 31 13:44	10° <del>16</del> 14'42	0°36'59
max. Earth dist.	5068 Sep 21 14:58	2° <del>15</del> 20'38	19.51488 AU	max. Earth dist.	5076 Oct 30 17:30	10° <del>16</del> 11'31	19.37366 AU
retrograde	5069 Jan 09 21:58	6° <del>15</del> 46'19		retrograde	5077 Feb 16 18:24	14° <del>16</del> 37'57	
opposition	5069 Mar 24 18:22	4° <del>15</del> 43'21	0°52'33	opposition	5077 May 01 08:18	12° <del>16</del> 35'43	0°39'51
min. Earth dist.	5069 Mar 25 11:21	4° <del>15</del> 41'29	17.49665 AU	min. Earth dist.	5077 May 02 01:24	12° <del>16</del> 33'52	17.37508 AU
direct	5069 Jun 08 01:28	2° <del>15</del> 38'09		direct	5077 Jul 16 12:13	10° <del>16</del> 29'58	
conjunction	5069 Sep 27 12:53	7° <del>15</del> 04'37	0°47'01	conjunction	5077 Nov 05 16:46	15° <del>16</del> 00'27	0°34'25
minimum elong	5069 Sep 27 12:53	7° <del>15</del> 04'37	0°47'00	minimum elong	5077 Nov 05 16:46	15° <del>16</del> 00'27	0°34'25
max. Earth dist.	5069 Sep 26 16:18	7° <del>15</del> 01'26	19.47909 AU	max. Earth dist.	5077 Nov 04 20:25	14° <del>16</del> 57'16	19.37694 AU
retrograde	5070 Jan 14 21:04	11° <del>15</del> 27'40			5077 Nov 05 13:52	15° <del>16</del>	
opposition	5070 Mar 29 15:27	9° <del>15</del> 24'40	0°52'09	retrograde	5078 Feb 21 17:16	19° <del>16</del> 23'25	
min. Earth dist.	5070 Mar 30 08:15	9° <del>15</del> 22'49	17.46351 AU	opposition	5078 May 06 08:41	17° <del>16</del> 21'17	0°36'52
direct	5070 Jun 13 00:53	7° <del>15</del> 19'15		min. Earth dist.	5078 May 07 02:22	17° <del>16</del> 19'22	17.38054 AU
conjunction	5070 Oct 02 16:14	11° <del>15</del> 46'37	0°46'29	direct	5078 Jul 21 13:55	15° <del>16</del> 15'32	
minimum elong	5070 Oct 02 16:14	11° <del>15</del> 46'37	0°46'30	conjunction	5078 Nov 10 19:33	19° <del>16</del> 45'55	0°31'38
max. Earth dist.	5070 Oct 01 20:28	11° <del>15</del> 43'33	19.44852 AU	minimum elong	5078 Nov 10 19:34	19° <del>16</del> 45'55	0°31'39
retrograde	5071 Jan 19 20:34	16° <del>15</del> 09'53		max. Earth dist.	5078 Nov 09 23:48	19° <del>16</del> 42'49	19.38461 AU
opposition	5071 Apr 03 13:00	14° <del>15</del> 06'56	0°51'24	retrograde	5079 Feb 26 17:58	24° <del>16</del> 08'28	
min. Earth dist.	5071 Apr 04 06:19	14° <del>15</del> 05'02	17.43564 AU	opposition	5079 May 11 08:57	22° <del>16</del> 06'26	0°33'38
direct	5071 Jun 18 00:21	12° <del>15</del> 01'22		min. Earth dist.	5079 May 12 01:21	22° <del>16</del> 04'39	17.39026 AU
conjunction	5071 Oct 07 19:38	16° <del>15</del> 29'32	0°45'39	direct	5079 Jul 26 17:57	20° <del>16</del> 00'41	
minimum elong	5071 Oct 07 19:38	16° <del>15</del> 29'32	0°45'39	conjunction	5079 Nov 15 21:51	24° <del>16</del> 30'50	0°28'37
max. Earth dist.	5071 Oct 06 22:31	16° <del>15</del> 26'15	19.42349 AU	minimum elong	5079 Nov 15 21:51	24° <del>16</del> 30'50	0°28'38
retrograde	5072 Jan 24 19:33	20° <del>15</del> 53'00		max. Earth dist.	5079 Nov 15 02:50	24° <del>16</del> 27'51	19.39660 AU
opposition	5072 Apr 07 11:08	18° <del>15</del> 50'07	0°50'18	retrograde	5080 Mar 02 15:56	28° <del>16</del> 52'55	
min. Earth dist.	5072 Apr 08 04:26	18° <del>15</del> 48'14	17.41341 AU	opposition	5080 May 15 09:32	26° <del>16</del> 50'57	0°30'10
direct	5072 Jun 22 00:37	16° <del>15</del> 44'28		min. Earth dist.	5080 May 16 02:19	26° <del>16</del> 49'08	17.40459 AU
conjunction	5072 Oct 11 23:13	21° <del>15</del> 13'20	0°44'30	direct	5080 Jul 30 19:08	24° <del>16</del> 45'14	
minimum elong	5072 Oct 11 23:13	21° <del>15</del> 13'20	0°44'31	conjunction	5080 Nov 19 23:19	29° <del>16</del> 14'58	0°25'25
max. Earth dist.	5072 Oct 11 03:14	21° <del>15</del> 10'14	19.40390 AU	minimum elong	5080 Nov 19 23:19	29° <del>16</del> 14'58	0°25'26
retrograde	5073 Jan 28 19:39	25° <del>15</del> 36'55		max. Earth dist.	5080 Nov 19 04:56	29° <del>16</del> 12'06	19.41338 AU
opposition	5073 Apr 12 09:46	23° <del>15</del> 34'11	0°48'51		5080 Dec 01 23:24	0° <del>17</del>	
min. Earth dist.	5073 Apr 13 03:09	23° <del>15</del> 32'17	17.39637 AU	retrograde	5081 Mar 07 16:03	3° <del>17</del> 36'32	
direct	5073 Jun 27 01:52	21° <del>15</del> 28'30		opposition	5081 May 20 09:55	1° <del>17</del> 34'37	0°26'30
max. Earth dist.	5073 Oct 16 05:43	25° <del>15</del> 54'40	19.38946 AU	min. Earth dist.	5081 May 21 00:52	1° <del>17</del> 33'00	17.42371 AU
conjunction	5073 Oct 17 02:49	25° <del>15</del> 57'57	0°43'03	direct	5081 Jun 30 21:10	30° <del>18</del>	
					5081 Aug 04 23:23	29° <del>16</del> 28'57	

	5081 Sep 08 11:31	0°♄		retrograde	5088 Apr 08 16:46	6°♄09'25	
max. Earth dist.	5081 Nov 24 07:35	3°♄55'33	19.43500 AU	opposition	5088 Jun 22 08:22	4°♄08'40	0°-2'-8
				min. Earth dist.	5088 Jun 22 15:08	4°♄07'57	17.69863 AU
conjunction	5081 Nov 25 00:19	3°♄58'10	0°22'04	direct	5088 Sep 07 11:10	2°♄04'37	
minimum elong	5081 Nov 25 00:19	3°♄58'10	0°22'05				
retrograde	5082 Mar 12 12:44	8°♄19'06		conjunction	5088 Dec 27 10:08	6°♄27'31	0°-3'-54
opposition	5082 May 25 10:12	6°♄17'17	0°22'40	minimum elong	5088 Dec 27 10:07	6°♄27'31	0°03'54
min. Earth dist.	5082 May 26 01:13	6°♄15'40	17.44793 AU	behind sun begin	5088 Dec 27 03:35	6°♄26'32	
direct	5082 Aug 10 00:38	4°♄11'42		behind sun end	5088 Dec 27 16:40	6°♄28'30	
max. Earth dist.	5082 Nov 29 08:20	8°♄37'44	19.46194 AU	max. Earth dist.	5088 Dec 27 02:59	6°♄26'26	19.72582 AU
				retrograde	5089 Apr 13 12:25	10°♄43'17	
conjunction	5082 Nov 30 00:32	8°♄40'16	0°18'34	opposition	5089 Jun 27 07:05	8°♄42'44	0°-6'-19
minimum elong	5082 Nov 30 00:32	8°♄40'16	0°18'34	min. Earth dist.	5089 Jun 27 12:15	8°♄42'12	17.75330 AU
retrograde	5083 Mar 17 11:36	13°♄00'33		direct	5089 Sep 12 10:38	6°♄39'01	
opposition	5083 May 30 10:22	10°♄58'49	0°18'42				
min. Earth dist.	5083 May 30 23:11	10°♄57'26	17.47750 AU	conjunction	5090 Jan 01 05:09	11°♄00'44	0°-7'-37
direct	5083 Aug 15 04:47	8°♄53'22		minimum elong	5090 Jan 01 05:08	11°♄00'44	0°07'38
max. Earth dist.	5083 Dec 04 10:16	13°♄19'03	19.49421 AU	behind sun begin	5089 Dec 31 23:08	10°♄59'50	
				behind sun end	5090 Jan 01 11:08	11°♄01'38	
conjunction	5083 Dec 05 00:04	13°♄21'12	0°14'58	max. Earth dist.	5090 Jan 01 00:23	11°♄00'01	19.78143 AU
minimum elong	5083 Dec 05 00:04	13°♄21'12	0°14'59	retrograde	5090 Apr 18 06:47	15°♄15'38	
behind sun begin	5083 Dec 04 21:37	13°♄20'49		opposition	5090 Jul 02 05:17	13°♄15'18	0°-10'-25
behind sun end	5083 Dec 05 02:31	13°♄21'34		min. Earth dist.	5090 Jul 02 09:24	13°♄14'52	17.80965 AU
retrograde	5084 Mar 21 07:27	17°♄40'47		direct	5090 Sep 17 10:09	11°♄11'55	
opposition	5084 Jun 03 10:33	15°♄39'12	0°14'38				
min. Earth dist.	5084 Jun 03 22:55	15°♄37'52	17.51247 AU	conjunction	5091 Jan 05 23:11	15°♄32'22	0°-11'-16
direct	5084 Aug 19 05:54	13°♄33'57		minimum elong	5091 Jan 05 23:11	15°♄32'22	0°11'15
				behind sun begin	5091 Jan 05 18:17	15°♄31'38	
conjunction	5084 Dec 08 22:45	18°♄00'56	0°11'17	behind sun end	5091 Jan 06 04:05	15°♄33'06	
minimum elong	5084 Dec 08 22:46	18°♄00'56	0°11'17	max. Earth dist.	5091 Jan 05 18:47	15°♄31'42	19.83851 AU
behind sun begin	5084 Dec 08 17:52	18°♄00'12		retrograde	5091 Apr 23 01:08	19°♄46'26	
behind sun end	5084 Dec 09 03:39	18°♄01'41		opposition	5091 Jul 07 03:12	17°♄46'16	0°-14'-27
max. Earth dist.	5084 Dec 08 09:31	17°♄58'53	19.53197 AU	min. Earth dist.	5091 Jul 07 06:05	17°♄45'58	17.86740 AU
retrograde	5085 Mar 26 05:29	22°♄19'48		direct	5091 Sep 22 07:38	15°♄43'12	
opposition	5085 Jun 08 10:16	20°♄18'24	0°10'29				
min. Earth dist.	5085 Jun 08 20:24	20°♄17'19	17.55278 AU	conjunction	5092 Jan 10 16:22	20°♄02'20	0°-14'-50
direct	5085 Aug 24 08:58	18°♄13'23		minimum elong	5092 Jan 10 16:22	20°♄02'20	0°14'50
				behind sun begin	5092 Jan 10 13:38	20°♄01'55	
conjunction	5085 Dec 13 20:50	22°♄39'29	0°07'33	behind sun end	5092 Jan 10 19:05	20°♄02'44	
minimum elong	5085 Dec 13 20:50	22°♄39'29	0°07'34	max. Earth dist.	5092 Jan 10 14:15	20°♄02'01	19.89670 AU
behind sun begin	5085 Dec 13 14:48	22°♄38'34		retrograde	5092 Apr 26 18:49	24°♄15'32	
behind sun end	5085 Dec 14 02:53	22°♄40'24		opposition	5092 Jul 11 00:36	22°♄15'31	0°-18'-22
max. Earth dist.	5085 Dec 13 10:16	22°♄37'51	19.57472 AU	min. Earth dist.	5092 Jul 11 01:59	22°♄15'22	17.92587 AU
retrograde	5086 Mar 31 00:46	26°♄57'36		direct	5092 Sep 26 06:14	20°♄12'46	
opposition	5086 Jun 13 09:56	24°♄56'25	0°06'17				
min. Earth dist.	5086 Jun 13 19:28	24°♄55'24	17.59767 AU	conjunction	5093 Jan 14 08:38	24°♄30'32	0°-18'-17
direct	5086 Aug 29 09:35	22°♄51'42		minimum elong	5093 Jan 14 08:37	24°♄30'32	0°18'17
				max. Earth dist.	5093 Jan 14 07:04	24°♄30'18	19.95552 AU
conjunction	5086 Dec 18 18:01	27°♄16'48	0°03'47	retrograde	5093 May 01 11:49	28°♄42'51	
minimum elong	5086 Dec 18 18:01	27°♄16'48	0°03'48	opposition	5093 Jul 15 21:16	26°♄42'57	0°-22'-8
behind sun begin	5086 Dec 18 11:27	27°♄15'49		min. Earth dist.	5093 Jul 15 21:43	26°♄42'54	17.98507 AU
behind sun end	5086 Dec 19 00:35	27°♄17'48		direct	5093 Oct 01 02:15	24°♄40'29	
max. Earth dist.	5086 Dec 18 07:51	27°♄15'15	19.62176 AU				
	5087 Feb 03 19:43	0°♄		conjunction	5094 Jan 19 00:05	28°♄56'52	0°-21'-37
retrograde	5087 Apr 04 21:47	1°♄34'10		minimum elong	5094 Jan 19 00:05	28°♄56'52	0°21'36
	5087 Jun 07 17:58	30°♄		max. Earth dist.	5094 Jan 19 00:36	28°♄56'56	20.01497 AU
opposition	5087 Jun 18 09:12	29°♄33'11	0°02'04		5094 Feb 05 08:45	0°♄	
min. Earth dist.	5087 Jun 18 16:49	29°♄32'23	17.64658 AU	retrograde	5094 May 06 04:16	3°♄08'17	
direct	5087 Sep 03 11:00	27°♄28'47		opposition	5094 Jul 20 17:21	1°♄08'28	0°-25'-45
	5087 Nov 22 08:43	0°♄		min. Earth dist.	5094 Jul 20 15:58	1°♄08'37	18.04466 AU
desc. node	5087 Dec 16 01:11	1°♄24'41			5094 Aug 19 00:26	30°♄	
				direct	5094 Oct 05 23:38	29°♄06'19	
conjunction	5087 Dec 23 14:37	1°♄52'51	0°00'-4		5094 Nov 21 05:27	0°♄	
minimum elong	5087 Dec 23 14:37	1°♄52'51	0°00'05				
behind sun begin	5087 Dec 23 08:26	1°♄51'55		conjunction	5095 Jan 23 14:24	3°♄21'15	0°-24'-47
behind sun end	5087 Dec 23 20:48	1°♄53'47		minimum elong	5095 Jan 23 14:24	3°♄21'15	0°24'48
max. Earth dist.	5087 Dec 23 07:05	1°♄51'42	19.67237 AU	max. Earth dist.	5095 Jan 23 15:53	3°♄21'29	20.07484 AU

retrograde	5095 May 10 19:56	7° $\approx$ 31'48	
opposition	5095 Jul 25 12:55	5° $\approx$ 32'03	0°-29'-11
min. Earth dist.	5095 Jul 25 10:35	5° $\approx$ 32'18	18.10501 AU
direct	5095 Oct 10 18:25	3° $\approx$ 30'11	
conjunction	5096 Jan 28 03:57	7° $\approx$ 43'41	0°-27'-48
minimum elong	5096 Jan 28 03:57	7° $\approx$ 43'41	0°27'48
max. Earth dist.	5096 Jan 28 07:35	7° $\approx$ 44'14	20.13560 AU
retrograde	5096 May 14 10:49	11° $\approx$ 53'22	
opposition	5096 Jul 29 07:42	9° $\approx$ 53'42	0°-32'-25
min. Earth dist.	5096 Jul 29 03:01	9° $\approx$ 54'11	18.16619 AU
direct	5096 Oct 14 14:28	7° $\approx$ 52'09	
conjunction	5097 Jan 31 16:29	12° $\approx$ 04'13	0°-30'-37
minimum elong	5097 Jan 31 16:29	12° $\approx$ 04'13	0°30'38
max. Earth dist.	5097 Jan 31 21:26	12° $\approx$ 04'58	20.19720 AU
	5097 Mar 26 06:06	15° $\approx$	
retrograde	5097 May 19 01:00	16° $\approx$ 13'04	
	5097 Jul 14 15:57	15° $\approx$	
opposition	5097 Aug 03 01:56	14° $\approx$ 13'30	0°-35'-26
min. Earth dist.	5097 Aug 02 20:23	14° $\approx$ 14'04	18.22835 AU
direct	5097 Oct 19 07:35	12° $\approx$ 12'16	
	5098 Jan 12 20:38	15° $\approx$	
conjunction	5098 Feb 05 04:23	16° $\approx$ 22'57	0°-33'-15
minimum elong	5098 Feb 05 04:23	16° $\approx$ 22'57	0°33'15
max. Earth dist.	5098 Feb 05 11:13	16° $\approx$ 23'59	20.25972 AU
retrograde	5098 May 23 14:49	20° $\approx$ 31'01	
opposition	5098 Aug 07 19:20	18° $\approx$ 31'34	0°-38'-14
min. Earth dist.	5098 Aug 07 11:19	18° $\approx$ 32'23	18.29107 AU
direct	5098 Oct 24 01:44	16° $\approx$ 30'42	
conjunction	5099 Feb 09 15:30	20° $\approx$ 40'01	0°-35'-40
minimum elong	5099 Feb 09 15:30	20° $\approx$ 40'01	0°35'41
max. Earth dist.	5099 Feb 09 23:45	20° $\approx$ 41'15	20.32260 AU
retrograde	5099 May 28 03:24	24° $\approx$ 47'20	
opposition	5099 Aug 12 12:26	22° $\approx$ 48'01	0°-40'-48
min. Earth dist.	5099 Aug 12 03:49	22° $\approx$ 48'54	18.35409 AU
direct	5099 Oct 28 17:15	20° $\approx$ 47'33	
conjunction	5100 Feb 14 01:50	24° $\approx$ 55'31	0°-37'-53
minimum elong	5100 Feb 14 01:50	24° $\approx$ 55'31	0°37'54
max. Earth dist.	5100 Feb 14 11:43	24° $\approx$ 57'00	20.38552 AU
retrograde	5100 Jun 01 16:48	29° $\approx$ 02'08	
opposition	5100 Aug 17 04:47	27° $\approx$ 02'57	0°-43'-8
min. Earth dist.	5100 Aug 16 17:49	27° $\approx$ 04'04	18.41665 AU
direct	5100 Nov 02 09:37	25° $\approx$ 02'52	